The Builder.

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The Ancient University of Paris and its Colleges.

WHEN an educated Englishman travels on the Continent he is probably more disappointed with the University towns than any other places that he visits. He looks in vain for any counterpart of Oxford or Cambridge, with their magnificent groups and assemblages of Academic buildings. It is true that here and there he may find some single structure that recalls an Oxford or Cambridge college. If, for instance, his travels lead him to Prague, the classical courts of the "Carolinum" and the "Clementinum" may remind him somewhat of the Quad at Queen's, Oxford. At picturesque Würzburg good Bishop Julius's "Universitats Gebäude," with its quaint admixture of Gothic and Renaissance architecture, may recall Oriel, or the third court of St. John's, Cambridge. Should he be in Spain, at Salamanca he will find a beautiful old Gothic University building, the work of the celebrated Spanish architect, Juan-Gil de Hontañon, and at Alcala-de-Henares a splendid Renaissance one, the work of the still more celebrated son, Rodriguez de Hontañon, who, singularly enough, was at the same time building at Segovia the most magnificent cathedral of the latest Gothic, and at Alcala one of the grandest Renaissance colleges ever erected. None of these, however, remind one of our own ancient Universities, because, granted that they are striking buildings, yet they are but solitary examples; and, to an Englishman's mind, one college can no more convey the notion of a University than one swallow make a summer. He thinks of Christchurch, Merton, Magdalen, and some twenty others, or of Trinity, St. John's, King's, and all their companions, forming grand architectural groups, crowned by spires, domes, and towers. He pictures to himself streets flanked by wide-fronted buildings, and gateways leading into noble courtyards, with lofty buttressed and pinnacled chapels; dining-halls with high-pitched roofs and louvres. Exquisite gardens and groves of stately trees running down to the banks of a clear river. Now none of the University towns we have named can realise this description. But, it will be asked, is not much of this realised at Paris — the most ancient and illustrious of all European Universities, and one which has played so important a part in modern history? Surely here will be found wonderful architectural evidences of past and present grandeur which must place it, at least, upon a level with the renowned English University towns? Well, let any Englishman, finding himself in the University quarter of Paris, glance around at the various edifices which go to form the external evidences of the existing University—what are they? We will just enumerate some of the most important ancient structures in this quarter dedicated to educational purposes, and contemplate the collection of "architectural glories." First and foremost, there is (or was, for it is now partially demolished) the respectable but dull old Sorbonne, with its dingy courtyard and gloomy chapel; then there is the hideous "Collège de France"; the vast ill-designed workhouse called the "Lycée" or "Collège de St. Barbe"; the substantial, but not beautiful, "Lycée St. Louis"; the "Lycée Henri IV.,"* which is relieved from architectural insignificance by the magnificent thirteenth-century refectory and tower of the ancient Abbey of Ste. Génévière, concealed from external view by modern barrack-like buildings; then there are the Law Schools and the Medical Schools, which, we trust, are practical enough, as nothing has been sacrificed to render them especially beautiful. Should we include the École Polytechnique, which is chiefly remarkable for having invaded the site of the fine old "Collège de Navarre," which it has by degrees shouldered out of existence? It would be too painful to continue this list any further.

The want of grandeur and dignity in the University buildings of Paris is all the more strongly accentuated from the fact that all the old buildings in the neighbourhood are characteristic, and, many of them extremely beautiful. The splendid old church of St. Étienne du Mont, the stately Romanesque St. Germain des Prés, the interesting Gothic churches of St. Severin and St. Médard, the lovely Flamboyant Hôtel de Cluny, the stately Renaissance St. Sulpice, the Luxembourg, and, notwithstanding a certain amount of ugliness, even Soufflot's portly bulk of the Pantheon, are all striking examples, and possess those merits which are remarkable by their absence in the University buildings. How the latter must have deteriorated from what they were in Mediæval times, and how a single century has sufficed to convert what was once an "Oxford" or a "Cambridge" into a dull, gloomy "education-factory"! It is next to impossible to realise the fact that, on this same spot, formerly stood a series of academical buildings which were unsurpassed anywhere in Europe. Where are they now? What has become of the noble Abbey of St. Victor, the stately College of the Bernardines, the exquisite Collège de Cluny, the elaborate little Collège de Cholet, the Collèges de Navarre, de Harcourt, de Lisieux, de Bayeux, and some twenty or thirty others? Of this grand, ancient University what now remains? We can count the fragments on our fingers, for we may almost say, "Perierunt etiam ruinæ!" The diligent antiquary may, perhaps, still discover—or, at any rate, he could have done so a few months ago—the old chapel of the Collège de Beauvais, the mutilated walls of the refectory of the Bernardines, a fragment of the little Collège de Mignon, a window or two of the apse of the Collège de Grassines, and a staircase turret of the Collège Fortet. How long the "*improvement*"-loving municipality of Paris will spare these few fragments of their country's history it is impossible to say. Only two years ago their minds were set upon the perfectly wanton destruction of the beautiful little church of St. Julien-le-Pauvre; but the French archæologists, upon whom seems to have fallen the mantle of the great Lenoir, rushed to the rescue, and prevented the municipality from perpetrating an act which would have covered them with obloquy.

It is really difficult to account for the constant destruction of ancient monuments which takes place all over France, and more especially in Paris. As already pointed out, French antiquaries are enthusiastic and self-sacrificing. The Government appears to be willing to do its duty in preserving ancient buildings, as is proved by the excellent law promulgated in recent years, which declares buildings of special interest "Monuments Historiques." If there is a valuable work of art to be secured, the French Government—whether the Ministry of the day be red, white, black, or neutral in complexion—is generally willing to pay the price required, and they do not, as the English Government did in the "Dolgelly Chalice" case, plead ignorance upon the subject until the treasure has passed into private hands; nor do they, as is the case here, when an important work upon art is published, insist upon the un-

* Or "Lycée Napoléon." It must be borne in mind that the names of the streets and buildings in this part of Paris have been so frequently changed of late years, that it is difficult to know how to indicate them.

fortunate author presenting about a dozen copies to various public libraries. The French Government considers that it is assisting art by *paying* for such works, and frequently makes a grant towards the expenses of bringing them out. Some of the clergy are excellent antiquarians, and a short time back, when the writer was dining with a friend of very advanced liberal views, a French gentleman called, and the conversation turned upon archæology and the Middle Ages. The Frenchman was most enthusiastic—"Our glorious St. Louis," "that spiritual realisation of religion translated into stone, La Sainte Chapelle," "our inspired Amiens," &c. After the Frenchman had left, the question was asked of the writer, "What do you think that man is?" Well, he certainly appeared to be an enthusiastic Catholic ecclesiologist, but it turned out that he was one of the leaders of the Commune! It is only possible to suppose that the Municipal Council, who are recruited from the bourgeois class (almost everywhere Philistine in sympathies), are to be blamed for all this wanton destruction that goes on.

When the writer visited Paris in 1850, and again in 1853, it was possible to discover remains of many fine old Gothic buildings in the University quarter—degraded, it is true, for the most part to vile uses; but the streets of St. Étienne des Grecs, St. Jacques, Des Carmes, Montagne, De la Harpe, St. Jean de Beauvais, Des Sept Voies, and others abounded in fragments and remains.* In company with an English antiquary resident in Paris he explored old courts and alleys where there were, amidst dirt and squalor, richly-carved doorways, canopied niches, and delicately traceried windows. Diving down into cellars were to be discovered the remains of vaulted crypts; bases of columns, or in some neglected garden the ruined apse or part of a cloister, told that a college or religious edifice once occupied the spot. Nearly all has, however, disappeared now. The new streets would almost seem to have been planned so as to destroy every vestige of antiquity. The Boulevard St. Michel, the Rue Soufflot, and the Rue des Écoles have entirely obliterated most of the old landmarks. To their construction is due the demolition of the grand old Commandery of St. John Lateran, with its interesting church, fortified tower, and vast crypts; the Collège de la Marche, de

Collège de Beauvais: in 1853.

Lisieux, and the remains of the Colleges of Montaigu, Cholet, and of the small but interesting fragments of the Jacobins and St. Étienne des Grecs. Of course, the greatest damage was wrought at the period of the Revolution, though the suppression of twenty-six of the ancient colleges, in the year 1760, may be said to have commenced it, and the years of neglect which followed the overthrow of the Monarchy completed it, when the disused colleges were degraded, their surroundings and the ruins themselves built over with the worst slums of a closely-packed city, the homes of direst poverty, and, too often, veritable dens of thieves and vagabonds; such a rookery, spreading disease and pestilence, both physical and moral, was formed, that we cannot be surprised at Haussmann's desire to sweep it away; but, surely, while removing the slums it was not necessary to have destroyed the fine old buildings—a thorough example of pulling up the wheat and the tares together.

It may be said, what is the good of telling us all this now? Surely it is too late to protest. Perhaps so, but still there are one or two things which might be saved. The beautiful college chapel of St. Jean de Beauvais, for instance, the only Mediæval college chapel left in Paris. When the writer, in the year 1853, made the sketch which is here reproduced, the building was used as a military store; a few years later it was purchased by the Dominican Order, restored, and re-used as a church. It was, however, closed upon the expulsion of the religious orders by the present Republic, and was threatened with destruction. It is a very pretty example of plain fourteenth-century Gothic, rather reminding one of the general outline of the Ste. Chapelle. Internally, it has a wooden barrel-roof, and, though rather plain, it is very elegantly proportioned. Before the Revolution it contained a splendid monument to the Dormans family, which was removed at the Revolution; one of the effigies now does duty as Héloïse in that Brummagem structure called "the tomb of Abelard and Héloïse," at Pére Lachaise. According to Stewart Rose, St. Francis Xavier was at this college before he joined St. Ignatius Loyola at the College of St. Barbe—a portion of which, we believe, still exists, hidden from view by the huge modern College of St. Barbe, which has shouldered out of existence the picturesque old college of Montaigu, where Ignatius Loyola made his classical studies. Erasmus was also at the Montaigu, where he grumbled at the darkness and dampness of his rooms! Views of the old Colleges of Montaigu and St. Barbe are to be found in Fournier's great work upon Paris, and in Stewart Rose's "St. Ignatius and the Early Jesuits."

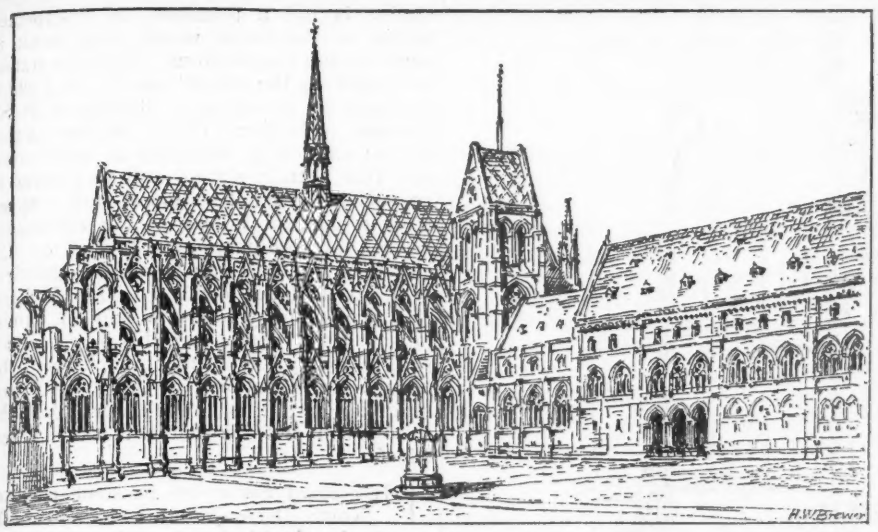
L'Abbaye de St. Victor: in 1809.

The greatest glories, however, from an architectural point of view, of the old University of Paris were the Abbey of St. Victor, the College of the Bernardines, the Collège de Cluny, and the Collège de Cholet. The Royal Abbey of St. Victor stood upon the Jardin des Plantes, at the site of the junction of the Rue Cuvier and the Rue Geoffry St. Hilaire, near a branch of the Bievre, now filled up.

Some years back the writer remembers seeing some ruins converted into a kind of grotto, which were pointed out as having formed a portion of the Infirmary Chapel of the Abbey, but they are not now to be found. If they have been destroyed, the Abbey of St. Victor has left nothing but a great name. Founded in the time of Louis le Gros (according to Germain Brice) about the year 1113, it became one of the most celebrated monasteries in Europe. The monks were of the order of Canons Regular—an order which seems in the earlier portion of the Middle Ages to have settled in the neighbourhood of Universities. Thus, Osney at Oxford, and Barnwell at Cambridge, both belonged to this order. These religious houses were, in fact, almost as much colleges as monasteries, and we find the canons of St. Victor insisting that the members and students of their houses should be considered members of the University of Paris. In 1308, 1406, and 1499, this claim was reasserted and allowed. All authorities speak with enthusiasm about the Abbey of St. Victor—Le Beuf, Germain Brice in the eighteenth century, and Guilhermy, Fournier and Hare in our own time.

The buildings appear to have been most magnificent. The great church, which stood upon a high ridge of ground, was built nearly north and south. Le Beuf says that it was orientated towards the "Summer Orient;" but the old views and maps of Paris, notably those of Germain Hoyer, Olivier Truschet in 1550, and the Vassalieu Plan 1609, show it positively north and south. It consisted of a long and very lofty choir, with double aisles ending in an aspe and chevet, deep transepts, Lady Chapel and very short nave and aisles, a lofty tower and spire at the side of the

* The names of most of these streets have been changed, and in some cases the streets themselves entirely obliterated.



Collège des Bernardins: about 1810.

choir, and a large porch or narthex at the west end. According to Le Beuf the Lady Chapel, tower, crypt and narthex were coeval with the foundation of the Abbey in 1113, but the rest of the church was rebuilt in 1517. The great Cloister and Chapter House of the Abbey dated from the thirteenth century, the Infirmary Chapel from the fourteenth, and the other buildings from the middle of the sixteenth century. It was so rich in stained-glass that a writer at the time of its destruction says: that the whole history of the art, from its commencement to its decline, might be studied in this one building.

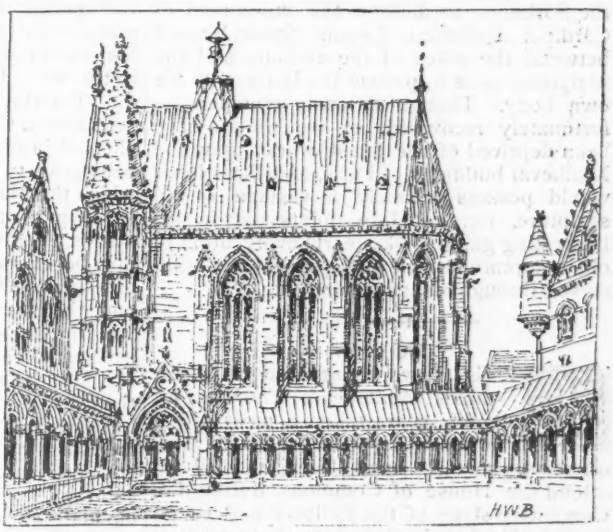
There are several views of St. Victor's in existence. The most interesting is dated 1804, and shows the flank of the church. Another view, from a sketch by Pernot, was published about 1820; but it is of no very great value, as the church was entirely destroyed in 1809. Some portions of the monastery which existed in 1838 are represented in a view by Varini. The sketch here given is founded on these various drawings. The church, cloisters, and infirmary chapel must have been full of grand monuments, as it was not only the burial-place of the abbots, monks, and illustrious members of the University, but also of the Bishops of Paris. (It should be understood that Paris was not raised into an archbishop's see until the seventeenth century; previous to that time Paris was a suffragan see to the Archbishopric of Sens.) Amongst the many eminent bishops buried here, perhaps the greatest was Maurice de Sully, the builder of the greater part of the present cathedral of Notre Dame. The only fragment of any monument, however, which is still to be found in Paris is the gravestone of Adam de St. Victor, in the Mazarin Museum, which bore upon it a striking Latin epitaph which Germain Bryce speaks of as having been St. Victor's own composition.

Not far from the Abbey of St. Victor, just within the old walls of the city, stood another ancient structure, the College of the Bernardines. This monastic college was founded by an Englishman, Stephen Lexington, Abbot of Clairvaux, in 1244, but it was made over in 1320 to the Cistercians. The church, or chapel, was erected by Pope Benedict XII., but, unfortunately, the western portion of the nave was never completed, as, before the vaulting over this part was constructed, the money sent over from Italy was stolen. Of the vast buildings only the walls of the east wing remain, and in so modernised a condition that nothing but a great row of buttresses can now be distinguished. When the writer first saw the building in 1853 this refectory, with the dormitory over it, was almost intact, and was one of the finest examples of Gothic architecture in Paris. It was about 240 ft. long and about 50 ft. high. The two upper stories were lit by Gothic windows, the upper range of one light and the second of three lights each. The ground floor was unfortunately buried up by the ground having been raised; the gable ends had rose windows. The building was so solid that, as Germain Brice says, it resembled a fortress. Unfortunately, Napoleon the Third had it converted into a barrack for firemen, the Gothic windows were blocked up, and the elegant details hacked away. Fortunately, that indefatigable antiquary, Albert Lenoir, made careful measured drawings of the whole, including a large portion of the church, the Chapter House, tower, and sacristy, which existed down to about the year 1830. These are published in Lenoir's great work, "Statistique Monumental de Paris, 1835." There are also some charming etchings of the buildings by Israel Sylvestre and others about a century earlier. Germain Brice, who hated Gothic architecture, and only believed in buildings which exhibited the Classical "orders" strictly adhered to, could not help being struck by this church. He says: "Ce qu'il y a de plus beau, c'est l'édifice de l'Eglise, construit en 1336, sous le titre de Saint Bernard, que l'on doit considerer comme un chef-d'-œuvre de l'architecture Gothique. Les voûtes en sont très élevées et parfaitement bien prises dans leur legèreté. Les chapelles qui regnent de chaque côté sont claires et ont de la proportion avec le reste de l'ouvrage." This church was indeed a magnificent one, and was to the University of Paris what King's Chapel is to Cambridge. Lenoir's measured drawings show it to have been 275 ft. long and nearly 100 ft. wide, and about the same to the crown of the vaulting. It consisted simply of a long nave and aisles bordered by thirty chapels; there was no apse, but a square east-end, like an English church; the whole was vaulted with stone. There was a small tower near the east-end, and all the windows were filled with stained glass. The choir stalls, which were executed in the reign of Henri II., were singularly elaborate. Brice says: "Les grotesques en sculpture dans les panneaux sont d'une invention très ingénieuse et d'un fini parfait." Externally the chapel was supported by pinnacled flying buttresses, and attached to it were a fine Chapter House and Sacristy; the former was connected with the great refectory by a remarkable winding stone staircase, constructed in such a manner that those ascending and descending never met. It was regarded as "a most admirable and curious work."

As the chapel which formed the north side of the court was 275 ft. long, and the refectory and Chapter House, which formed the east side, measured together 290 ft., the Quad must have been about the same size as Trinity, Cambridge. There are cloisters mentioned, but, as they are not indicated in the views of the great court, there may have been a second court. The whole must have formed the finest college in Europe. The sketch here given is taken partly from an old etching, but the detail corrected from Lenoir's measured plans and drawings.

The Collège de Cluny stood on the south side of the Place de la Sorbonne. It had only one small court, surrounded by an exquisite little cloister; the chapel, the sister edifice to Ste. Chapelle, was not so large, but even more rich in detail and carving. This most beautiful building was spared at the Revolution, and the painter David converted it into a studio. He appears to have taken good care of it. In the year 1834, however, it came into the possession of the Municipality of Paris, and although all the archæologists, architects, and artists of France appealed to the Government to interfere and save this most perfect example of thirteenth-century architecture, all was of no avail, and the work of destruction was commenced by the demolition of the chapel. The last vestige of the college, a charming little gable with a corbelled-out turret, remained to the year 1848.

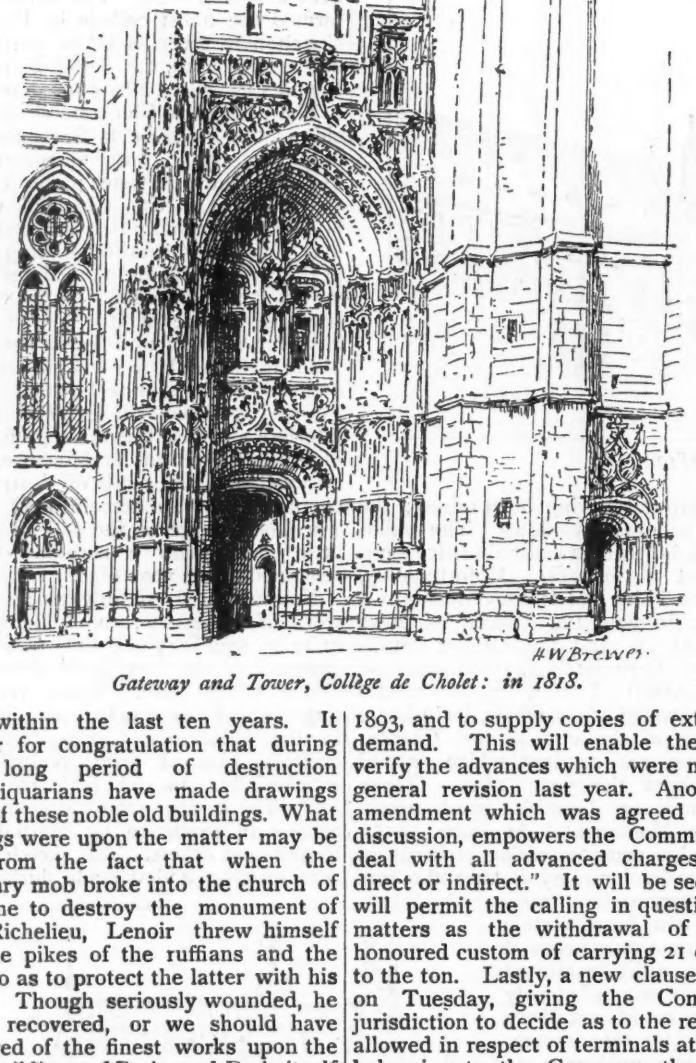
Nothing could possibly have excused this work of barbarism; the building occupied quite a small space, but was a perfect example of the very finest development of Gothic architecture. Some very precious fragments of this structure are still preserved in the Hôtel de Cluny—carved bosses, capitals adorned with realistic foliage: wonderfully graceful little rose windows, &c. There are many drawings of the college in existence by Martial, Bonadot, Pernot, and others. The sketch here given is taken from a view made during the work of destruction; the graceful flêche or spirelet shown in some of the old plans and views of Paris had disappeared, but the windows and cloister arcades are clearly shown.



Collège de Cluny: in 1834.

Another exquisite little college was that of Cholet. The singularly rich gateway, picturesque tower, and chapel were destroyed in 1818 or 1820. The sketch is from one made at the time of the destruction. One jamb of a large and remarkably elaborate doorway, adorned with Flamboyant tracery and deeply undercut vine-leaves in the hollows, existed in the Rue St. Etienne des Grecs in 1853. This may have been a portion of the Collège de Cholet, but so many fine buildings stood close together in this part of the street that it might also have belonged to the great convent of the Jacobins or the Church of St. Etienne des Grecs, all of which have now disappeared.

A gateway which formed the entrance to the Collège de Navarre, adorned with niches and carving, was pulled down in 1860. A simpler but almost equally beautiful one, which belonged to the Collège de Bayeux, existed down to 1852, and a fine fragment of the great College of Cardinal Lemoine, in the Rue Cardinal Lemoine, has only dis-



Gateway and Tower, Collège de Cholet: in 1818.

appeared within the last ten years. It is a matter for congratulation that during all this long period of destruction French antiquarians have made drawings and notes of these noble old buildings. What their feelings were upon the matter may be gathered from the fact that when the Revolutionary mob broke into the church of the Sorbonne to destroy the monument of Cardinal Richelieu, Lenoir threw himself between the pikes of the ruffians and the sculpture, so as to protect the latter with his own body. Though seriously wounded, he fortunately recovered, or we should have been deprived of the finest works upon the Mediæval buildings of Paris, and Paris itself would possess scarcely a vestage of old sculpture, for, as Hare points out in his interesting guide book, nearly every atom of old sculpture which was saved was preserved through his instrumentality.

NOTES.

IT is very unfortunate that Sir James Whitehead, who has for some years taken a most active interest in the railway rates question, should have been too ill to attend the House of Commons during the Committee stage of the Railway and Canal Traffic Bill; but the interests of the trading community were well looked after by Sir Albert Rollit and others. The time devoted to the discussion of the question was really quite inadequate, and the President of the Board of Trade admitted that the Bill, in its present form, was not all that its supporters would have wished it to be. This Bill is the one brought in by Mr. Mundella with a view of empowering the Railway Commissioners to hear and determine complaints as to the raising of rates since December, 1892; but, as was pointed out during the brief debate of Friday last, the wording of the measure appears to effectually sanction all rates previously in force, making the railway companies secure against appeals with respect to them. This doubtless explains the acceptance of the measure by the companies, who have offered no opposition to it at this stage, although they united in describing it at the half-yearly meetings as unfair, unjust, and unnecessary. They have secured the insertion of a clause enforcing the payment by complainants of the charge which would have been payable had the previous rates remained in force; Sir A. Rollit, on the other hand, has carried his proposal that each railway company shall be required to keep all the rate books which were in force before 1893, and to supply copies of extracts upon demand. This will enable the public to verify the advances which were made at the general revision last year. Another useful amendment which was agreed to without discussion, empowers the Commissioners to deal with all advanced charges "whether direct or indirect." It will be seen that this will permit the calling in question of such matters as the withdrawal of the time-honoured custom of carrying 21 cwt. of coal to the ton. Lastly, a new clause was added on Tuesday, giving the Commissioners jurisdiction to decide as to the rebates to be allowed in respect of terminals at sidings not belonging to the Company, the point for which the Mansion House Association have so long contended. The Bill, as it now stands, is admittedly a compromise, and cannot be expected to cover all the points of difference between the railway companies and their customers; but it should be welcomed as going a long way towards settling some of the most pressing of them. Mr. Mundella has expressed his opinion that the changes effected in the measure since he introduced it in his capacity as President of the Board of Trade, have made it a very fair and reasonable settlement of the question, and that it "fairly carries out the recommendations of the Select Committee." But the Bill is scarcely comprehensive enough to have done this, even with the additions which have been made to it.

THE accident (if it deserves that name) at St. Pancras Station is the second which has come under our notice on the Midland Railway from the same cause, viz., driving at an imprudent speed into terminal stations, trusting to the powers of a continuous brake, which generally acts efficiently, but which may fail, as in this case, at a critical moment. The previous accident to which we refer was one which occurred a good many years ago at the Manchester terminal station of the same company, to a train running from Liverpool to Manchester. The result was different in that case, as the train did not live to get into the station, but ran off the line at a sharp curve, calculated only for such low speeds as might naturally be expected in trains approaching a terminus—but the reason was the same; the train was allowed to run up to the terminus at too high a speed; a fault which is unfortunately characteristic of the Midland Railway, on which a system of running up to stations at high speed and depending on the continuous break to check the train at the proper moment, has too much prevailed. Where the station is not a terminus, an unexpected failure of the break would only result in over-running the platform; where the station is a terminus, the natural result is that which has been so unfortunately illustrated at St. Pancras. The moral of the accident is that greater caution is necessary in such cases, and that a train should only be allowed to approach a terminal station at such a speed that, in case of failure of the continuous break, the ordinary hand-breaks on the engine and guard's van should be sufficient to keep it under control. The Midland Railway Company has now had an unmistakable object-lesson on this point, which will probably be further emphasised by heavy compensation to the injured passengers; and it is to be hoped that the lesson will not be without its practical effect.

THE Road Surveyors in some parts of North Derbyshire are either totally unacquainted with the class of material best suited for road-metalling, or they are sadly ignorant of the available products of their respective neighbourhoods. The month of August, so far, has been very wet in the district, and all roads except those of the first order are in a most deplorable condition—in some cases almost unpassable, for the depth of mud and pools of water on them. The ordinary road-metal used in the district to which we particularly refer, is Carboniferous Limestone, not of the most crystalline description. It appears to be very brittle and easily disintegrable, as might be imagined from the average quality of the material in various parts of the Kingdom. A very few months suffice to convert a road newly metalled with it into a mud-pond, and in one case which came under our notice a road made up only ten weeks since was absolutely worn out. After a spell of dry weather all the ways become very dusty, which renders locomotion exceedingly unpleasant. And all this occurs in a region where road-metal of the most durable kind exists, and in great abundance. An igneous rock, for the most part dolerite, is found in the Carboniferous Limestone area, and may sometimes be seen in close proximity to a limestone quarry exploited for road-metal. This rock, called "toadstone," or "dunstone," is very hard and tough—much more so, we should say, than even the best quality Guernsey stone, and would constitute an excellent macadam. Some varieties of it, it is true, are vesicular or amygdaloidal, and these may be discarded, but thick beds of close dunstone suitable for the purpose are common enough. On inquiry, we ascertained that the reason the toadstone was not utilised was because it is so hard and expensive to break—a circumstance which we fully anticipated. It may be used as macadam in some parts of the county, but after inspecting many of the roads we have never seen it so employed. Now, it may be objected that the Local Boards and Highway Authorities are responsible for this state of things, and that they are afraid to incur the initial expenditure in making good roads, because their budget for the time being would be imperilled. This is no defence: any Surveyor, worthy the name, would know that the employment of the superior class of metal referred to could not fail to be the most economical in the long run, and his plain duty is to candidly inform the authorities of this. Yet we find in too many instances that the Surveyor "sides with the Board," instead of fulfilling his duty. Were good road-metal not immediately available there might be some excuse. Many of the roads as they now are, are a disgrace to civilisation.

WE referred once to the subordinate position which architecture seems to hold in the Vienna "Engenieur und Architektur Verein," and it is not surprising that the architects of the city have now formed a society of their own, under the title of the "Architekten-Klub," which is supposed

to be the special home of the "Art-Architect," the architects of more "professional" and surveying proclivities being still to be found in connexion with the older society. Herr Andreas Streit will be the first president, and the council includes the names of Professors Foerster, Kœnig, and Wielemans.

THE Whitton Park Estate, extending over 115 acres, close by Hounslow Heath, is about to be sold, in parcels, for building purposes. The grounds were laid out over some cornfields and waste of the heath by Archibald, third Duke of Argyll, one of the first to encourage the cultivation of foreign trees and shrubs. Here, in the closing years of George I.'s reign, he planted the fine cedars and firs, and built a tower for his astronomical pursuits, and a conservatory for his once-famed collection of exotics. The conservatory was subsequently converted into a villa; Sir William Chambers bought the house, and built various temples, ruins, &c., about the grounds, somewhat after the mode he adopted at Kew; one of them being a modern temple of Æsculapius, in honour of the Reverend Dr. Willis, after George III.'s recovery in 1789. At Whitton was Cibber's marble group of a Highland piper and his dog, afterwards removed to Stowe. A bas-relief of Zeus and the Titans was carved for the pediment above the main entrance by Dere.

WE hear that the Bishop and Dean of Winchester propose to convert Wolvesey Palace—latterly used for purposes of the Diocesan Training School — into a church-house for the diocese. Wolvesey was formerly the bishops' palace at Winchester; its history carries us back to a time when that city was the capital of England, and a depository of the king's treasure.* Standing eastwards of the Close, within the ancient wall, and separated from the Precincts by the main stream of the Mill-race or Lock Pond, it is entered from the road which passes from College-street round the Warden's garden to Black bridge across the Itchen. Within its grounds are the ruins of an older palace, known as the Castle, built by Henry of Blois in 1137-8, who used materials of the Conqueror's palace, which he pulled down as an encroachment on church lands. Dismantled by Henry II., the Castle continued to serve as the bishops' residence until overthrown by Sir William Waller. The masonry presents one peculiarity: the rubble wall is bonded by a course of stones, long, narrow, and round, resembling the shafts commonly used for door and window jambs, placed lengthwise through the wall, and having their ends flush with the surface. The bonding stones are of Binstead limestone, or Quarr stone, whereof much of the oldest portion of the cathedral is built,† and, it is conjectured, came from the Conqueror's first palace. Of the bishops' palace there are views in Wavell, on the margin of Godson's map, and in Buck's "East Prospect of Winchester" (1736). Over the gateway were set Bishop Fox's arms and name; on the front, an inscription thus—

Georgius Morley, Episcopus, has aedes propriis impensis de novo struxit A.D. 1684.

Morley laid out 2,300*l.* on the new building (near the site of the old), whose erection was superintended by Wren, bequeathing 500*l.* more for its completion. In Richard Warner's "Collections" is a view, 1780, of the Perpendicular chapel, 36 ft. by 30 ft., showing how it had been defaced, and changed with a modernised interior; it was formerly attached to the Castle, when the latter served for the bishops' home, communicating therewith by a gallery, 68 ft. by 16 ft., on the first story. In his detailed description of the Castle, Milner directs attention to the unusual neatness of the pellet ornamentation and triangular fret of some semi-circular arches on the inner face of the big court; a later authority avers that his plan of the fabric, done "ad mentem Jo. Milner" is scarcely correct in its entirety.

* See the review in the *Builder*, October 24, 1891, of Mr. Hubert Hall's "Antiquities and Curiosities of the Exchequer."

† *Vide* Giraldus Cambrensis, and Winchester volume of the Archæolog. Inst.

THE French Government has just published the particulars of the competition, open to all French architects, for the buildings for the 1900 Exhibition. The designs are to be sent in from the 10th to the 12th of December next. Each is to include a general plan of a half-millimètre to a mètre, a detailed plan of 1-millimètre scale, an elevation of the façade to a 2-millimètre scale, and a bird's-eye view. Liberty is left to the competitors as to the treatment or abolition of every erection now on the site, except the Trocadéro, with liberty to enlarge the latter if desired. Among the new buildings the competitors must provide a Salle des Fêtes, a congress hall, and a hall for the distribution of awards. They must also consider the question of a bridge over the Seine opposite the Invalides, and show the design for laying out the parks and gardens in which the separate pavilions will be erected. The programme also states that the new buildings are to be strictly temporary in character, and that the competitors are to endeavour to realise the best effects in the most economical materials, a leaf taken, no doubt, from the Chicago Exhibition, combined with the experience of the difficulty of knowing what to do with the more solid erection of the last Paris Exhibition.

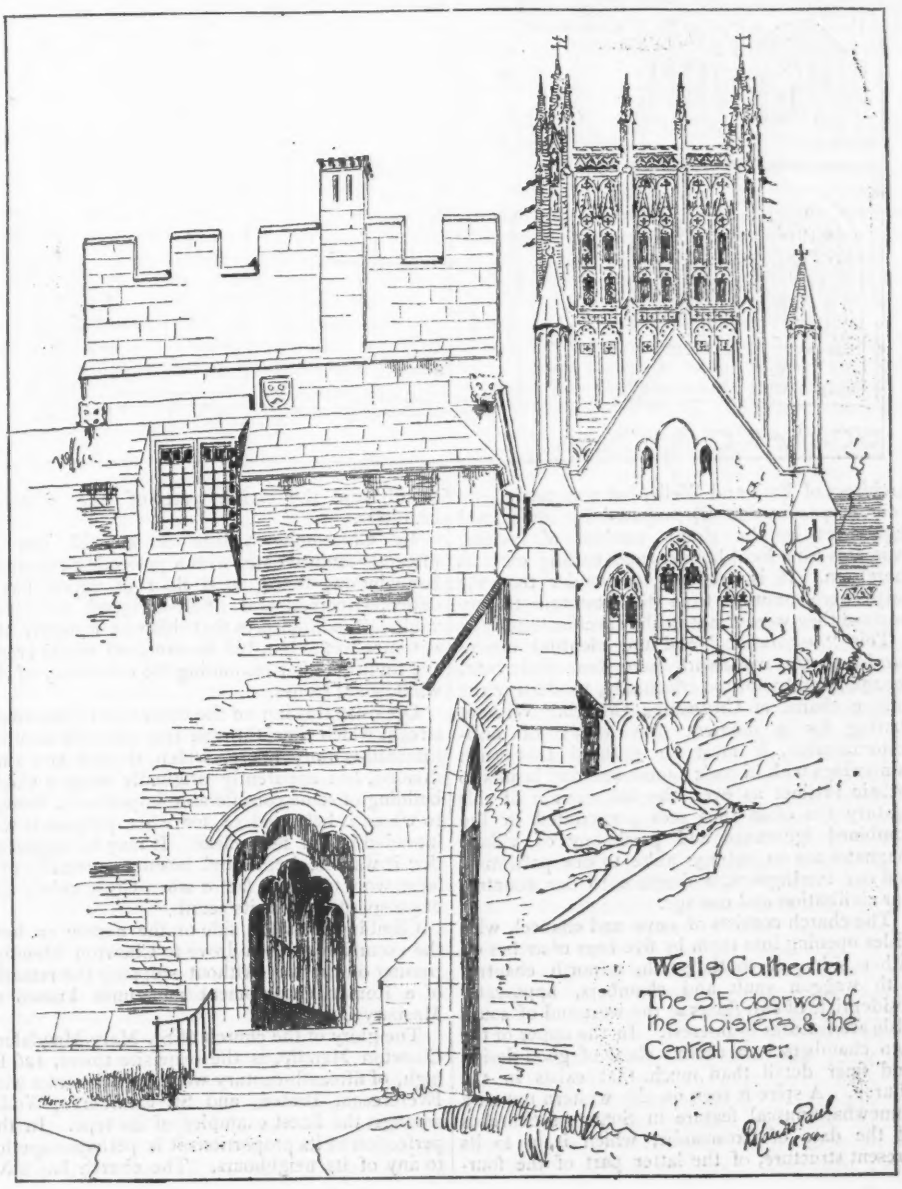
THE ARCHITECTURAL ASSOCIATION:

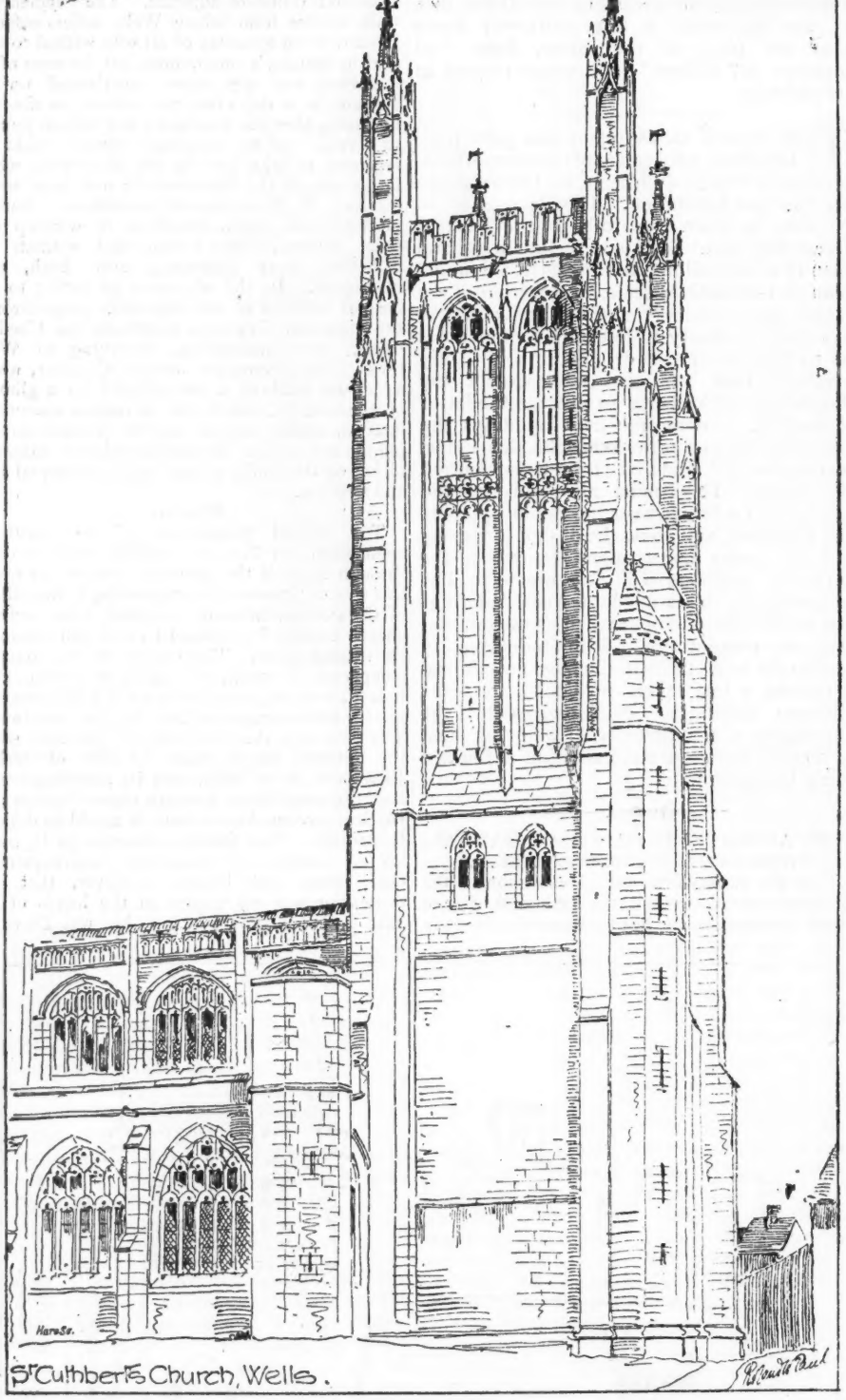
TWENTY-FIFTH ANNUAL EXCURSION.

FOR the twenty-fifth annual excursion of the Architectural Association the cathedral city of Wells is serving as the headquarters for the study of ancient architecture in the parts of Somersetshire and Wiltshire adjacent. The deficiency of train service from which Wells suffers enforced the arrival on Saturday of all who wished to take part in Monday's programme, but by none of the members was any regret experienced on this account, as a day's rest was almost an absolute necessity, after the wearisome and tedious journey to Wells, before sufficient vigour could be regained to take part in the hard work which forms one of the characteristic and most useful features of these annual excursions. Sunday morning was spent, therefore, in worship and quiet contemplation within and without the cathedral, ever charming, ever fresh, ever instructive. In the afternoon an outing to the natural beauties of the wonderful gorge through the mountain limestone, known as the Cheddar Cliffs, was undertaken, returning to Wells through the picturesque town of Cheddar, where a halt was made of a few minutes for a glimpse of the church, which has a certain amount of interest, chiefly centred in the fifteenth-century pulpit and some pleasantly-designed canopied niches on the jambs of the south transeptal arch and window.

Monday.

The official programme of the excursion commenced on Monday morning with a drive through some of the beautiful scenery for which this side of Somerset is remarkable, to the village of Croscombe, formerly a market town under a charter granted by Edward I., and still retaining its market cross. The church of St. Mary is comparatively small, but highly interesting, and, indeed, eminent, even in the county of Somerset, for its fine examples of late English woodwork. The nave-roof, the Mediæval and Jacobean seats, the beautiful pulpit, with the arms of Bishop Lake, and dated 1616, with its sounding-board, and the magnificent Laudian chancel-screen and parclose screens, form a series it would be difficult to parallel. Two fine brass coronæ go to make up an interior of exceeding picturesqueness. One cannot but lament, however, that the restoration was not placed in the hands of the late J. D. Sedding, when he was Diocesan





St Cuthbert's Church, Wells.

Architect of Bath and Wells, but was carried out from a specification (?) prepared by some local dignitaries by the simple method of inviting estimates from local builders and cutting extracts therefrom. It is needless to wonder that the cusps were omitted from the restored tracery because they were "not in the specification."

This "restoration" and the plentiful use of varnish to the woodwork have done their best, though happily not too effectually, to destroy the unique charm of Croscombe Church. Without sharing for a moment the views of anti-restorationists, it must be granted that such tamperings with historic monuments and insults to artistic instinct as even the last decade of this century too often thus sees perpetrated by the combined ignorance and parsimony of village magnates are an outrage alike to our patriotism and our intelligence, a disgrace to our country, our civilisation and our age.

The church consists of nave and chancel, with aisles opening into them by five bays of arches on either side. A south porch, a north chantry, with waggon vault and chambers, apparently residential, of two floors at the west end of south aisle are features of interest. In the upper of the two chambers is a carved chest of good design and finer detail than much that exists in the church. A spire is seen on the western tower, a somewhat unusual feature in Somerset churches of the date of Croscombe, which is, as to its present structure, of the latter part of the fourteenth and the earlier part of the fifteenth centuries.

In Croscombe village is an old inn of fifteenth-century date, with a projecting two-story bay-window, the ground floor of which has a delicately-carved and finely-designed flat stone vault. Tradition says that this was formerly the entrance to the inn, but no architect would credit the tradition after examining the continuity of the window-sill stones.

Opposite this inn on the other side of the small stream which runs through the village is another fifteenth-century house, which, though now subdivided, has apparently originally been a single building of some considerable importance, though to whom it belonged or for what purpose it was intended is not now clear. It may be suggested that it was the home and business premises of a large wool trader or factor when Croscombe's day of prosperity was at its zenith.

Climbing the steep side of the combe or fort, the excursionists then drove to Chewton Mendip, passing on the way without stopping the remains of a Roman encampment sometimes known as Masbury Castle.

The glory of the church of St. Mary Magdalen, Chewton Mendip, is the exquisite tower, 126 ft. high, of fifteenth-century work, which ranks with Evercreech, Bruton, and St. Cuthbert's, Wells, amongst the finest examples of its type. In the perfection of its proportions it is perhaps superior to any of its neighbours. The church has nave and chancel, with south aisle to each, and a modern vestry and restored south porch. The north door and chancel-arch are Late Norman, the arcade Early English, with some good carving to the chancel columns and the two western bays coeval with the tower. The sedilia and one piscina apparently are of the same date as the monument behind them, known as the Bonville monument, but as to which some confusion has arisen from the fact that although the tomb may have been executed at the date of the death of William Lord Bonville, son of Sir William Bonville, in 1461, the figure of the knight resting on the tomb does not bear the arms of the Bonvilles, bends, and mullets, but has on the jupon lions rampant, two and one, and on the camail a small shield of St. George, whence it may be inferred that the effigies are those of Sir Henry Fitzroger, who died in 1350, and Dame Elizabeth, his wife, who died in 1388, this knight's arms being gules, three lions rampant, or, whilst the Cross of St. George is accounted for by the fact that this Henry Fitzroger was a tenant in Chewton of land "Pro ordine fratrum sanctæ crucis juxta turrim London." The figures are considerably short of the tomb in length, indicating that once again the ignorance of local magnates and lay "restorers" has succeeded in falsifying history and inventing puzzles for the learned.

After tea at the vicarage a pleasant drive through some of the charming scenery of the Mendips brought the party back to Wells, well content with the absence of threatened rain and the presence of bright sunshine.

Tuesday.

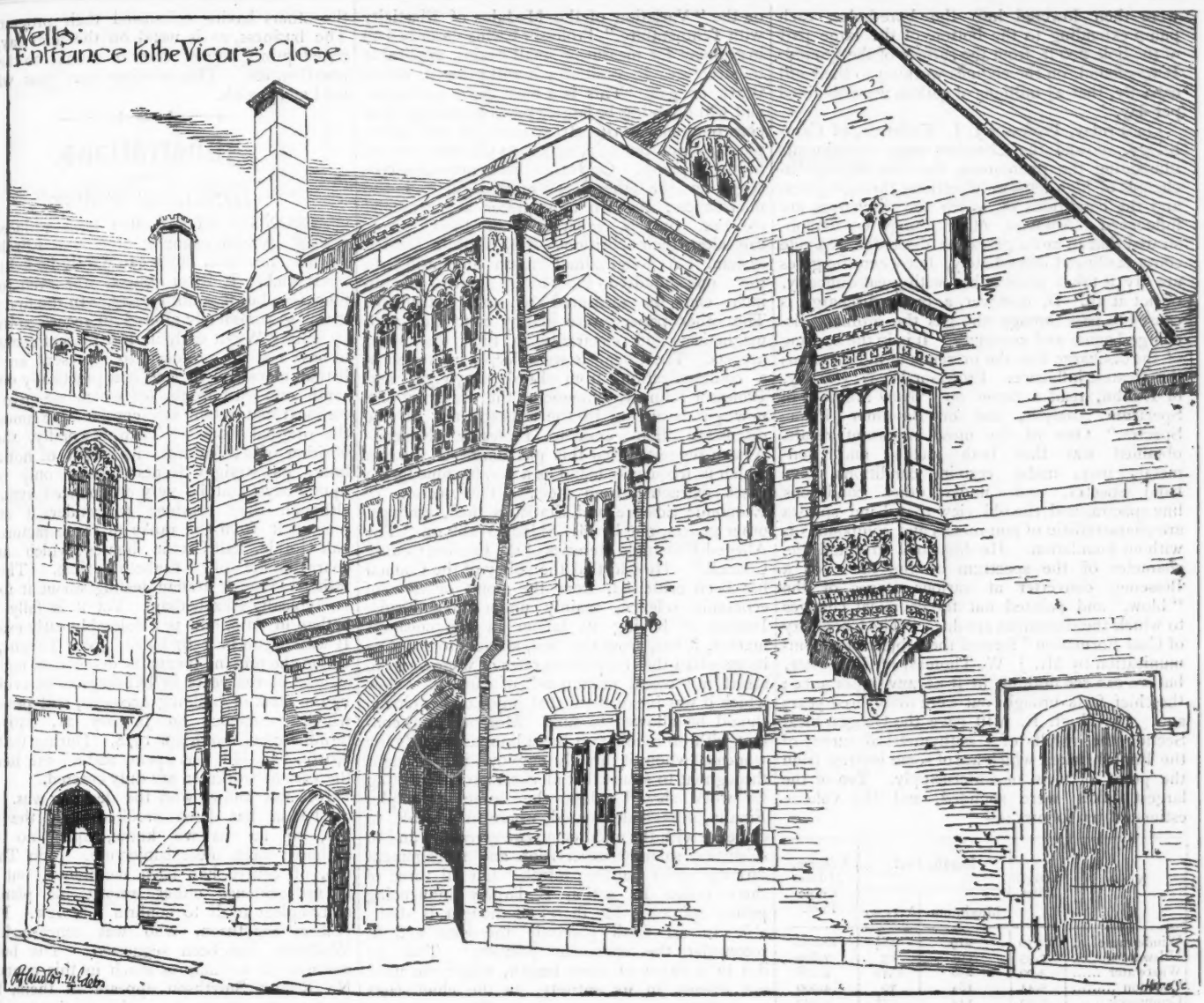
Tuesday morning was spent in a peregrination through the city of Wells, the church of St. Cuthbert being first visited, the interior of which presented an unexpectedly imposing effect from the loftiness of the Early English nave arcade, surmounted by the Perpendicular clearstory and fine roof. The height of the nave-arcade, which, though admittedly unusual, is in its proportions not without parallel, and the apparent difference in the stone used in the upper and lower parts of the piers, have suggested to some that the nave-arcade was heightened possibly when the clearstory was added. This is an ingenious but overstrained explanation, which, although possible, is hardly conclusive. The church of St. Cuthbert has suffered immensely from the wanton mutilation of the magnificent altar-pieces which formerly beautified the ends of the north and south aisle, and we cannot too strongly condemn the careless disposition of the exquisite fragments, of the Jesse tree especially, which are exposed to imminent danger in their haphazard arrangement on the floor of the south aisle, and which, from the perfection of their workmanship and decoration, are worthy of suitable cases, even if it is vain to hope for their restoration to their rightful position.

From St. Cuthbert's the party proceeded to the neighbouring almshouses, founded by and named after Bishop Bulwith, in which, though now somewhat obscured, may be still traced the original disposition, and in which can be clearly seen the chapel and its roof continued westward.

Next the Bishop's barn was visited, some few domestic fragments being glanced at *en route*. The barn, 110 ft. by 27 ft. internally, though of less importance than some others in the neighbourhood, is still of interest and in good preservation, and the visitors were glad to hear that the idea of inserting dormers and enlarging the small windows in order to give more light for its present use as a concert-room and tea-room had been abandoned.

A short step brought the party to the Bishop's Palace, where were visited the dining-room in the undercroft, the library, Bishop Jocelyn's chapel, and Bishop Burnell's hall, which are too well known to need further description; then crossing the Cathedral green to the new College library, which has been formerly styled the archdeaconry, but of which the original purpose is doubtful. The old roof is in wonderful preservation, and of a high excellence in design, which we regret did not inspire the architect who has carried out the recent refitting to a more worthy and painstaking treatment of the new woodwork that has been inserted.

From the library to the Vicars' Close, in which several of the theological students now reside, was a natural transition, and here first was inspected the hall or common-room erected by Bishop Pomeroy for the corporation of vicars that Bishop Bekynton had founded. The wood panelling, the roof, fireplace, and reader's stall still give evidence of the ancient use and arrangement of the room, though the paraphernalia of a



Masonic lodge now lend to it a somewhat different aspect. The chapel at the upper end of the Close is most refreshing and charming, refitted and adorned as it is at the hands of the late J. D. Sedding and Mr. Heywood Sumner, whose sgraffito decoration came as a revelation to many of the members. By the kindness of Mr. Alfred Clarke, who has the good fortune to reside in one of the houses in the Close, the visitors were enabled to see the most perfect example of the ancient arrangement and charm of the delightful residences that make up this famous and picturesque locality.

From the Close the excursionists went to the interior of the cathedral, where the rest of the morning was spent, and whither many returned in the afternoon, which was devoted to sketching, the members of the party being left free to their individual preference in the selection of their particular objects of study amongst the many which they had been shown in the morning. A plan, illustrations, and description of the cathedral church of Wells formed No. 5 of the *Builder* series of Cathedrals of England and Wales, and was published on May 2, 1891.

We shall continue our account of the excursion next week.

THE BRITISH ASSOCIATION.

THE annual meeting of the British Association opened, with great *éclat*, at Oxford, on the 8th inst., under the presidency of the Marquis of Salisbury.

On Friday, the 10th, when the sections had thoroughly settled down to work, that devoted to Mathematical and Physical science listened to a paper by Lord Kelvin and Mr. Magnus Maclean, entitled "Preliminary experiments to find if subtraction of water from air causes its electrification." The experiments described were performed by blowing ordinary air through a drying tube containing pumice and sulphuric acid, the tube being carefully insulated and screened from external electrification. Ordinary air so treated, raised the potential of the acid by about nine volts, and passed off negatively electrified. A similar effect was observed with chloride of calcium as the drying material, but, on replacing the acid by water round the pumice, no electrification could be detected. Hence, the effect was really due to true electrification of the vapour in the air. Other papers dealing with the technique of electricity and mathematics were also read. In the Chemistry and Mineralogy departments Professor W. C. Roberts-Austen presented the report of the committee on an International Standard for the Analysis of Iron and Steel. He announced that the composition of the remaining standard, No. 5, had been determined by four different analysts, and was now accurately ascertained. The standards would shortly be deposited with the Board of Trade. The paper by Professor Clowes, of Nottingham, on the "Proportions of Carbonic Acid in Air which are extinctive to flame, and which are irrespirable," was of great interest as dealing with a problem affecting many industries. It stated that the flames of candles, oil, paraffin and alcohol are extinguished by air containing from 13 to 16 per cent. of carbonic acid. The flame of coal gas requires the presence of at least 33 per cent. of the extinctive gas, whilst the flame of hydrogen requires 58 per cent. It would appear that air containing at least 10 per cent. of carbonic acid more than is required to extinguish a candle flame can be breathed with impunity, but on this point the statements of different observers are conflicting. The vitality of the hydrogen flame in foul air makes it useful for maintaining the flame of a miner's safety-lamp in an impure atmosphere. Dr. Haldane, of Oxford, said that his experiments proved conclusively that air containing as much as 20 per cent. of carbonic acid could not be breathed even for a minute without serious consequences. In the Geological Section, Professor W. Boyd Dawkins made a communication on the probable range of the Coal Measures in Oxfordshire, from which it would seem that since the discovery of coal at Dover, geologists are making strenuous efforts to unearth that useful mineral from beneath the Secondary and Tertiary rocks in localities hitherto unsuspected, or, at any rate, neglected. The Manchester Professor also told us something of an iron ore found in the boring at Shakespeare Cliff, Dover—an oolitic iron, similar to that obtained from the Corallian rocks of Westbury, in Wiltshire. The Biologists were addressed by their President, Professor Bayley Balfour, on the subject of forestry, and on the necessity of preserving timber-trees, which might have been taken as a foregone conclusion. Mr. Henry Davey, M.Inst.C.E., read a paper before the Mechanical Science Section on "Bore-hole Wells for Town Water Supply," dealing with a system proposed by him at the Cardiff meeting of the Association. He stated that the system had now been carried out at several places, notably at the Netherley pumping-station of the Widnes water-works, particulars being given. Instead of sinking a well 12 ft. to 14 ft. diameter, a long and costly undertaking (especially if soft strata are met with where lining becomes necessary), simple bore-holes are made. Four 30 in. bore-holes can be put down in a very short space of time, much less than is required to sink a 12-ft. well, to accommodate the pumps for duplicate pumping-engines—a pair of pumps to each engine. The bore-holes being completed, the pumps are lowered into them and coupled up to the permanent engines. Immediately that is done, the water found in the bore-holes can be pumped and supplied to the town. Should this be insufficient, a small well would be sunk in the dry to the bottom of the bore-hole pumps. The water being kept down by the action of the pumps, the bore-holes at the level of these latter would be connected to the centre-well and adits driven to collect more water. Of course, should the yield of the bore-holes be sufficient for the purpose in hand there would be no necessity to sink the well. Neither would the system be applicable to many situations, so far as we can see at present. The bore-holes at Netherley, two in number, are sunk in red sandstone rock, and placed 20 ft. apart, each being bored to a diameter of 30 in. for a depth of 200 ft., and to a reduced diameter of 18 in. for a further depth of 200 ft. and 300 ft. respectively, thus making one hole 400 ft. and the other 500 ft. in depth. On the completion of the boring, the water stood 70 ft. to 80 ft. from the surface of the ground, when the quantity pumped by the old engine on the same site was 1¼ million gallons per day. The main pumps

were then lowered into the bore-holes, each pump extending to the bottom of the large part of the hole 200 ft. from the surface of the ground. It was found, on the engines working to their full capacity, that 2¾ millions of gallons were obtained per day.

On Friday, Professor J. J. Thomson, of Cambridge, showed the Chemists some experiments illustrating the phenomena that accompany discharges of high-tension electricity through gases, and the conditions by which the discharges are influenced. Amongst other things he demonstrated that in moist gases the discharge as a rule starts easily and immediately, but when the gases are dry it takes place either with great difficulty. or not at all. If, however, a brush discharge is caused to pass through the gas the ordinary discharge begins and continues. It is in the starting of the discharge that the presence of moisture has the greatest influence. Professor W. N. Hartley, of Dublin, read a paper on "New Methods of Spectrum Analysis, and on Bessemer Flame Spectra." One of the most important results obtained was that both metals and non-metals may, under certain conditions, give band spectra, and under other conditions line spectra, and the old view that band spectra are characteristic of non-metals and compounds is without foundation. He described in detail the character of the spectrum of the flame of a Bessemer converter at various stages of the "blow," and pointed out the chemical changes to which the alterations are due. "The Chemistry of Coal Formation" formed the subject of a communication by Mr. J. W. Thomas, of Gloucester, but we can see nothing in it of any importance; the chief facts brought out were discovered years ago. Dr. Hugh R. Mill gave the Geographical Section the results of a bathymetrical survey of the English lakes, which are of some interest from the point of view of water-supply. Ten of the largest lakes were sounded, and the volume estimated as follows:—

Name.	Length Miles.	Depth, Feet		Volume, Million Cubic Feet.
		Maximum.	Average	
Windermere	10.50	219	78½	12,250
Ullswater.....	7.35	205	83	7,870
Wastwater	3.00	258	134½	4,128
Coniston	5.41	184	79	4,000
Crummock	2.50	144	87½	2,343
Ennerdale	2.40	148	62	1,978
Bassenthwaite ..	3.83	70	18	1,023
Derwentwater ..	2.87	72	18	1,010
Haweswater	2.33	103	39½	589
Buttermere	1.26	94	54½	537

Saturday was a short day in most of the sections, and a whole holiday for the Chemists and Geographers. In the Mathematical and Physical Science section Professor S. P. Langley, of the Smithsonian Institution, read a paper describing his researches on the infra-red spectrum, which bids fair to enormously increase our knowledge concerning the constitution of the sun. Mr. Arthur J. Evans read a paper before the Anthropological section on a "New System of Hieroglyphics and a pre-Phœnician script from Crete and the Peloponnese." He remarked that evidence of the existence of a fully-developed hieroglyphic system on European soil had been hitherto lacking, though recent discoveries had established the fact that in Asia Minor, the pre-historic remains showed intimate connexion with those of the Greek and Thracian lands; a hieroglyphic system had grown up, independent of the Egyptian, to which the general name of "Hittite" had been given. The revelations began by Dr. Schliemann at Tiryns and Mycenæ, and still accumulating, had brought to light, on the soil of Greece itself, a very ancient civilisation, in many respects contemporary with that of Egypt and Babylonia. During a visit to Greece last year, he (Mr. Evans) had obtained a clue to the existence of a peculiar kind of seal-stones, the chief find-spot of which seemed to be Crete, presenting symbols of a hieroglyphic nature. This spring he had renewed his researches in Crete, and the result was the discovery of a series of stones presenting pictographic symbols of the same nature, so that he was now able to put together over seventy symbols belonging to an independent hieroglyphic system. Further, he had discovered, partly on stones of similar form, partly engraved on prehistoric vases and other materials, a series of linear characters, a certain proportion of which appeared to grow out of the pictorial forms, and these were described in detail.

On Monday all departments were busy. In the section of Mathematics and Physics many papers were read, amongst them one by Professor Mayer on the "Variation of the Modulus of Elasticity with Temperature." Professor Ewing described an instrument for measuring small strains, applicable to structures in position; it will measure either thrust or pull. This is a most useful invention, and will doubtless be largely taken advantage of in constructional work. It consists of two cross-pieces, which can be attached to the test-piece by means of pivots. One cross-piece carries a microscope, and the other has a mark sighted by the microscope; the two cross-pieces are arranged so that only a separation of their pivots can alter their positions—they form a jointed system. A longitudinal strain amounting to the one-hundred-thousandth part of an inch can be measured by the instrument. The other papers were mainly concerned with magnetism and electricity in their theoretical aspects. The Chemists were deeply interested in a communication from Lord Rayleigh and Professor Ramsay, announcing the discovery of a new gas occurring in the atmosphere. In the discussion that ensued, Professor Roberts-Austen suggested that this gas might be the one which is frequently found as a residue among the gases extracted from steel. The section of Economic Science and Statistics had, amongst other papers, one by Mr. Sidney Webb on "The Alleged Economic Heresies of the London County Council." He said that the policy of the Council has been criticised, from the point of view of economic science, mainly under three heads. Instead of buying its labour in the cheapest market, it has, from the first, striven to adopt as its standard the trade union rates of wages, and to assert a "moral minimum" of earnings, below which it was inexpedient that any London citizen should be allowed to sink. Moreover, not content with proceeding on these lines as regards the workmen whom it directly employs, it has sought throughout to secure that all contractors executing its work should adopt the same principle. Finally, it has endeavoured, wherever possible, to dispense with the middleman *entrepreneur*, and to substitute salaried supervision and management directly under public control. On all three of these points its action is largely influencing public opinion. He therefore thought it desirable to set forth precisely the facts and to reconsider the economic position. This he did in a paper of some length, which we need not discuss in its entirety, as the chief facts are well-known to our readers. The communication was practically a defence of the Council's policy. Mr. Webb remarked that with regard to the Council's determination to dispense, wherever possible, with the contractor, and to execute its works by engaging a staff of workmen under the supervision of its own salaried officers, this had been fiercely attacked as being palpably and obviously opposed to political economy and business experience. He showed by figures that there had been a saving of 2,420*l.*, or 12·33 per cent., in the first sixteen operations carried out by the Council without a contractor. Mr. Webb also justified the principle of competition. In the discussion, Mr. Bond said there was an impression abroad that the London County Council overpaid their unskilled workmen, and underpaid the most highly-skilled. The Council might do better than endeavour to master the details of every trade, and he disapproved the rigid adherence to trade union wages. In the section of Anthropology, the "Lake Village at Glastonbury" (referred to last year) formed the subject of a report. It appears that the work of excavation has been much retarded by floods, but many interesting facts have been brought to light.

On Tuesday all sections were equally busy. In the section of Mathematics, amongst other things Professor Oliver Lodge described some experiments to illustrate Clerk Maxwell's theory of light. In the Geological section the twentieth report of the Underground Water Committee, drawn up by the Secretary, Mr. De Rance, was communicated. It was stated that an abstract of the previous nineteen reports will be ready for separate publication this year. The Geographers were interested in a paper by Mr. Somers Clarke, dealing with that part of Lower Nubia which will be flooded by the proposed Nile reservoir. He urged that, in view of the contemplated destruction, it is of the utmost importance to make an exhaustive scientific investigation of the valley before it is submerged. In the section devoted to Mechanical Science, Professor Unwin brought up the report of the Committee on Dryness of Steam, and many interesting papers, though not quite within our province, were read.

On Wednesday, only four sections assembled, the others having exhausted their programmes. The business, as is usual on the final day, consisted principally of votes of thanks to the Corporation, &c. The meeting next year will be held at Ipswich.

Illustrations.

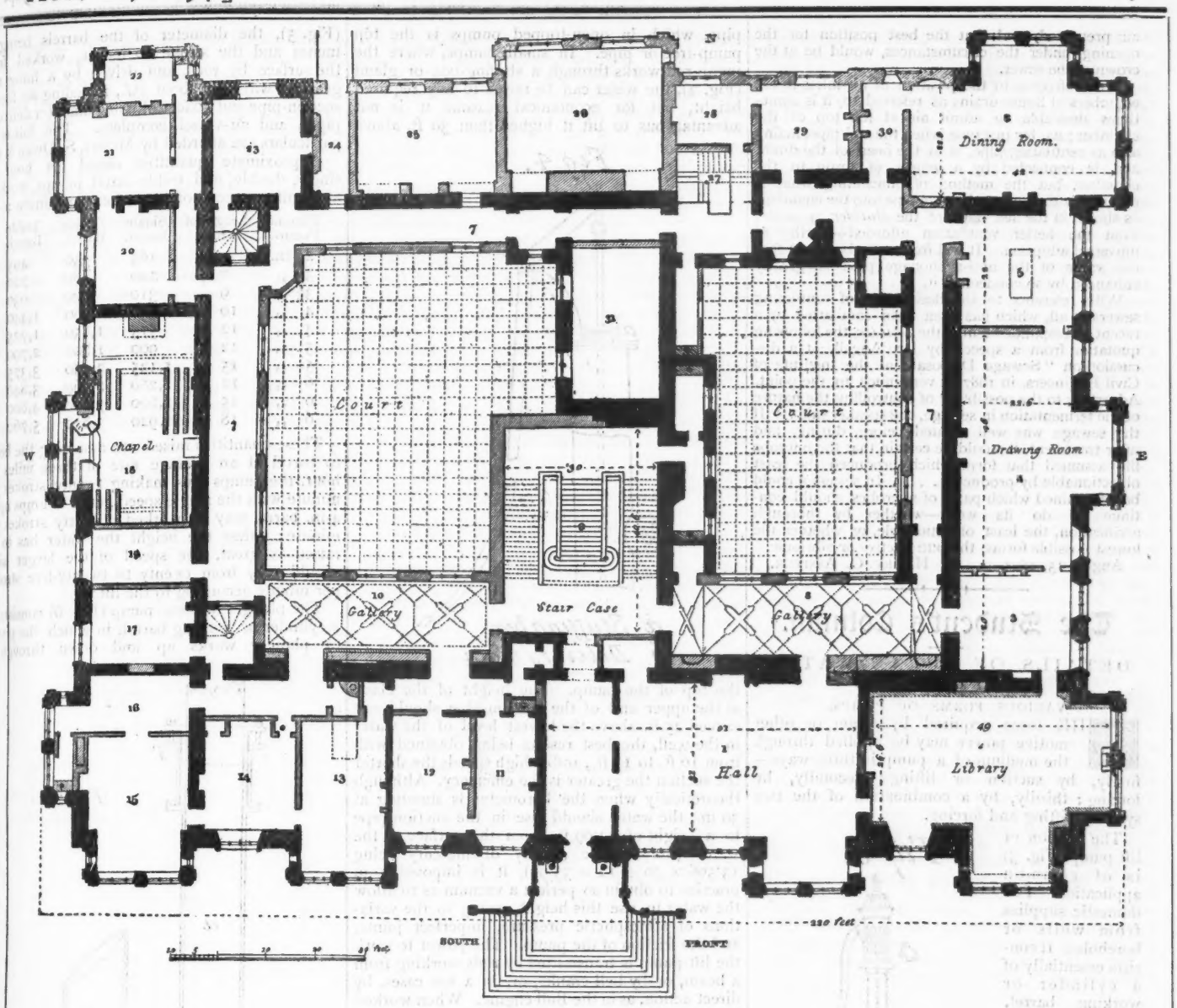
LONGLEAT HOUSE.

LONGLEAT has often been adduced as a typical example of a fine Elizabethan mansion, but it can hardly be held to be really such. It is, of course, fine even to magnificence, but it is not typical. In the first place, it was so completely altered in regard to its plan by Jeffrey Wyatt early in the present century, as to have lost all pretence to represent an Elizabethan mansion—in fact, it is practically only the south and east fronts (of which we give illustrations) that retain any considerable amount of the original work. Then, secondly, the disposition of its features, its length of horizontal lines, its straight fronts broken only by the square bays, and its very pronounced symmetry, although they combine to render it stately, remove it from the ranks of those picturesque, half-Gothic, half-Classic houses which are so characteristic of Elizabeth's time. There is rather too much Italian feeling about it for it to be typically Elizabethan. Yet it is fully Elizabethan in date, and is a tolerably early example. It was begun in 1567 by Sir John Thynne, from whom the present owner is descended, and took at least eleven years in building, as is evidenced by the book of building accounts, still preserved, which commence on January 21, 1567, and terminate on March 29, 1578. During that time 8,016*l.* 13s. 8½d. was spent, and all the items to the various workmen are duly entered.

It is not known who the designer was. John of Padua has been credited with the work, but, so far as we know, upon no better authority than mere conjecture. John Thorpe, too, of course has been mentioned, but there is no evidence either among his plans, or at Longleat itself to confirm this view. Finally Robert Smythson, who was concerned with Wollaton, has been suggested. The building accounts do not help us much in this connexion. No Robert Smythson appears in them, but a Richard Smythson does, who received 16d. per day. The head mason's name was More, but in the same year in which the accounts begin, *i.e.*, 1567, a Robert Smythson is said to have been sent to succeed him; but no one has yet reconciled the discrepancy in the names of Robert and Richard; and the share of either of them, if there were two, has yet to be determined. The field of conjecture in these matters is very wide, but there is this to be observed, that in certain respects Longleat and Wollaton are alike. They are both characterised by stateliness rather than picturesqueness; they both have a feeling of squareness, and the detail of the windows and the cornices is of the same kind, though not by any means precisely alike. It would not be extravagant to imagine them the work of the same mind, but the difficulty in these cases is to obtain any real tangible evidence upon which to work; possibly a comparison of the building accounts of the two houses might throw some light upon the question, but there would be some difficulty in looking at them actually side by side. It may also be remarked that the Sir John Thynne who began the house died in 1580, in which year Wollaton was begun, so that it would be quite possible for the clerk-of-works from Longleat to have gone to Wollaton on the death of his employer.

In another respect the two houses are alike, and that is in the circular niches containing busts, which are placed under the windows of the bays. Such niches frequently occur in buildings of the time, but hardly in such abundance as at Longleat and Wollaton. They represent, of course, some classical personage, a philosopher, or poet, or soldier, or one of the Nine Worthies—perhaps Pompion the Great, as Costard calls him in "Love's Labour Lost." At Montacute the Nine Worthies stand in niches, complete from head to foot—here, whoever is represented has but a bust, and so, too, at Wollaton, where among those which are named are Virgil, Aristotle, and Plato. At Longleat none are named.

The work, which was begun by Sir John Thynne, was continued by his son, who caused the finishing touches to be put, such as the balustrade, the chimneys, some of the towers, and the screen and woodwork in the hall. It is not improbable that the resent flat, straight balus-



Ground Plan, Longleat House.

ade may at one time have been broken by ables, and the roof, too, may have been visible; it would have been in accordance with the work of the time if it were so; but there may be an old print extant which would settle these points. At any rate we know enough of Jeffrey Wyatt to believe that he would not scruple to make even the most radical changes to suit his purpose, and he did not hesitate to obliterate history where he thought it necessary. We can hardly complain of changes in the plan. If houses are to continue as homes, they must be altered to suit the requirements of succeeding generations; but the propriety of altering the external appearance, merely for the sake of gratifying one's own particular tastes, may well be called in question.

To return to the point whence we started: while we may well admire the stateliness of Longleat, in spite of (or, if preferred, in consequence of) what Jeffrey Wyatt did to it, it would be misleading to regard it as a typical example of Elizabethan architecture.

ARCHITECTURAL ASSOCIATION EXCURSION: SKETCHES.

THESE sketches, which were made by Mr. Arnold Mitchell, are given as reminiscences of picturesque bits in the places visited during the annual excursion of the Architectural Association, which has taken place this week. Most of them will be referred to in the articles descriptive of the excursion, in this and the following week's issue.

APPOINTMENT.—At a meeting of the Heston and Isleworth Local Board, held on Tuesday last, Mr. J. H. Strachan, of Brentford, was elected to the vacant position of Engineer and Surveyor, at a salary of 400*l.* per annum. The following were selected from the applicants to appear before the Board:—Hume, Hounslow; Laffan, Twickenham; Strachan, Brentford; Flower, Assistant-Surveyor, Hounslow; Marston, Sutton Coldfield; and MacBriar, Lincoln.

Correspondence.

To the Editor of THE BUILDER.

ARCHITECTS' CERTIFICATES.

SIR,—The only purpose, we take it, which was originally intended to be served by an architect's certificate, was that of certifying that the work done by a contractor had been completed in a satisfactory manner.

During the last two or three years, it seems to us, a custom has grown up of making the certificates serve another purpose, which in our opinion is very unfair to the contractor; that is to say when, for any reason, the customer is unable or unwilling to make payment, the architect's certificate is withheld, and in its absence under the conditions of many contracts the contractor is of course powerless to take legal proceedings, or at the very best he runs a considerable risk of failure.

During the present year we have had not less than five cases in which certificates have been withheld. In none of them was there any dispute as to the work not having been finished in a satisfactory manner; had this been otherwise, there would of course be no point in our dispute.

1.—In the first instance the architect distinctly told us, in confidence, that the company employing him had directed him to issue no more certificates till they had funds in hand to meet them.

2.—In the second case the customer repeatedly expressed his willingness to pay as soon as we got the certificate; the architect did not refuse in so many words to give the certificate, but he did not reply to our letters and was always out when we called. In this instance, as we had not the slightest evidence of collusion, although, of course, we could not but suspect it, we could do absolutely nothing.

3.—In the third instance the architect promised to issue a certificate if we would give him a commission, and upon our declining to do this he took no further notice of our requests.

4.—In the fourth case the work was done in a very great hurry and at much inconvenience to ourselves, the architects were an old-established and most respected firm.

They did not refuse the certificate, but delayed from time to time, until six months had elapsed, when it was issued. When we produced the document, we were informed that the proprietors of the building were in liquidation, and that an application had been made for an order of the Court restraining creditors.

5.—In this instance, the only one of the five in which there was a dispute of any kind, a question arose in connexion with a trifling sum charged for extras. Owing to this the architect refused a written certificate of the completion of the contract, although he stated he would issue one as soon as the account was adjusted. The proprietors, however, refused to pay anything owing to the certificate not being issued. In this last instance we shall probably succeed in getting our money, but nothing could be done in regard to the other four, and our purpose in writing is to ask your readers if they are experienced in similar difficulties in connexion with architects' certificates.

We do not wish our names to be published for the present moment, for obvious reasons, but you, Sir, will be able to confirm the fact that we have been many years in business. Down to recent times we have never experienced any difficulty, and it seems to us that a new custom must be growing up on the part of proprietors of buildings of requesting architects to withhold certificates for financial reasons only. If this is the case, we think that concerted action by a few of the larger firms would be of service. Unless our own experience is unique, we are of opinion that it is absolutely necessary that something should be done in the matter, unless contractors are content to submit to considerable losses.

When a shaky United Company is the customer, a delay in certifying for the work done is often an effective weapon in defeating the contractor.

"MECHANICAL ENGINEERS."

SEWER VENTILATION.

SIR,—Exception having been taken to my criticism of the sketch published in the *Builder* of July 28, I should like to say I quite agree with the principle of admitting air as low as possible within the bounds of practicability. What I desired to point out was that as shown in the sketch the air-inlet would frequently be *covered* by the sewage—not necessarily permanently stopped up as your correspondent seems to have understood me—and the admission of

air prevented, and that the best position for the opening, under the circumstances, would be at the crown of the sewer.

With reference to the position of air-inlets in the chambers of house-drains as referred to, it is sometimes desirable to admit air at the top of the chamber; as, for instance, when the soil-pipe, acting also as ventilating-pipe, is at the head of the drain, and is connected by a length of drain to the chamber, but the method of connecting what is practically the anti-syphonage pipe into the chamber, as shown in the last issue of the *Builder*, is—apart from the better ventilation afforded—worthy of universal adoption. It will frequently be found that the value of the anti-syphonage pipe is greatly enhanced by so connecting it.

With reference to the desirability of ventilating sewers at all, which has even been combatted by a recent correspondendent of the *Builder*, the following quotation from a speech by Dr. Angell, at a discussion on "Sewage Disposal," at the Institute of Civil Engineers, in 1887, is very much to the point. Adverting to the possibility of controlling the nature of the fermentation in sewage, the speaker said: "If the sewage was well aërated before, during, and after treatment, it would be certain that the microbe life assumed that form which produced the least objectionable by-products. . . . . In sewers it could be determined which party of microbes should continue to do its work—whether by thorough aërification, the least objectionable, or whether the lowest possible forms, the putrefactive or vibrionic."

August 15, 1894. HARRY G. ASSITER.

The Student's Column.

DETAILS OF RURAL WATER SUPPLY.—VII.

VARIOUS FORMS OF PUMPS.

THE force acquired by steam or other motive power may be applied through the medium of a pump in three ways—firstly, by suction or lifting; secondly, by forcing; thirdly, by a combination of the two systems, lifting and forcing.

The suction or lift pump (Fig. 3) is of common application for domestic supplies from wells or boreholes. It consists essentially of a cylinder or working barrel, with a suction-pipe at the lower end, at the top of which is a valve, technically called a "clack." The delivery-pipe or rising main is attached to the upper end of the barrel, and through it a pump-rod with a valve or bucket attached to its lower end is worked up and down in the working barrel. The upward movement of the bucket withdraws the pressure of the atmosphere from the surface of the water inside the suction-pipe, and the pressure of the atmosphere on the surface of the water in the well forces the water up above the clack, or to such a height that the pressures on either side of the pipe are in equilibrium. The water retained by the clack passes through the valve at the lower end of the pump-rod as the latter moves downwards, and is raised at each successive stroke until it reaches the top of the rising main or delivery-pipe, which in open-topped pumps is the top pump-tree or pipe. In small pumps, where the pump-rod works through a stuffing-box or gland (Fig. 4), the water can be raised to any required height, but for economical reasons it is not advantageous to lift it higher than 30 ft. above the top of the pump. The height of the clack at the upper end of the suction-pipe should not exceed 25 ft. above the lowest level of the water in the well, the best results being obtained with from 10 ft. to 15 ft., and in high speeds the shorter the suction the greater is the efficiency. Although theoretically when the barometer is standing at 30 in., the water should rise in the suction-pipe to a height of 33·99 ft. from the surface of the water (the specific gravity of mercury being 13·596 × 30 ÷ 12 = 33·99), it is impossible in practice to obtain so perfect a vacuum as to allow the water to rise this height, owing to the variations of atmospheric pressure, imperfect joints, and the friction of the pump. The power to work the lift-pump is transmitted by rods working from a beam, or by bell-cranks, or, in a few cases, by direct action, as in the Bull engine. When worked by manual labour, either a lever, or wheel and handle, are used. In deep wells the lift-pump is generally used to lift the water to a tank at the surface, from which it is taken by force, or bucket and plunger pumps, and delivered at the height required. The price of the ordinary lift-pump, with a working barrel, 3 in. in diameter, complete, for a depth of 30 ft., is 5*l*., and from 2s. 6d. to 2s. 9d. per foot beyond that depth. The capacity of this pump when worked by hand is equal to 400 gallons per hour, lifted from a depth of 30 feet. A double or "two-throw" pump (Fig. 5), the diameter of the barrels being 3 inches and the stroke 10 inches, worked by the surface by rods, and driven by a horse gearing, will cost about 35*l*., including 20 feet suction-pipe and 50 feet of rising main (or delivery pipe), and air-vessel complete. The following particulars are afforded by Messrs. S. Owen & Co.

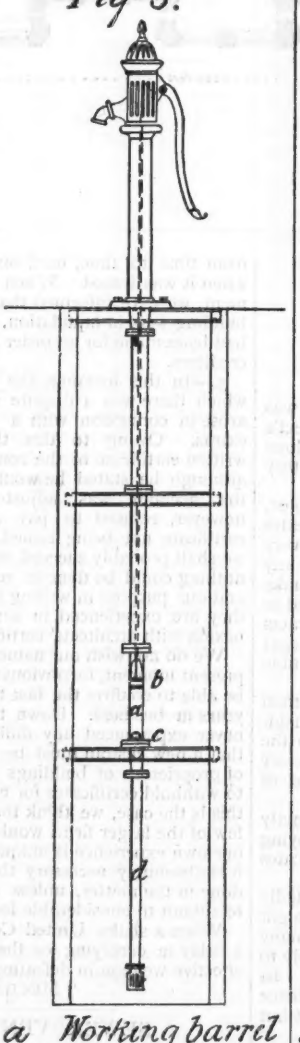
Approximate quantities raised per hour by single, double, and treble-barrel pumps worked at a uniform speed of 20 strokes per minute:—

Dim. of Pumps.	Length of Stroke.	Single Barrel.	Double Barrel.	Treble Barrel.
2½ in.	9 in.	165	330	495
3 ,,	9 ,,	240	480	720
3½ ,,	9 ,,	310	620	930
4 ,,	10 ,,	480	960	1,440
4 ,,	12 ,,	575	1,150	1,725
5 ,,	12 ,,	900	1,800	2,700
5 ,,	15 ,,	1,125	2,250	3,375
6 ,,	12 ,,	1,280	2,560	3,840
6 ,,	15 ,,	1,600	3,200	4,800
6 ,,	18 ,,	1,920	3,840	5,760

These quantities raised are assuming the bucket to travel at an average rate of three miles per hour, the pumps thus making twenty strokes per minute with the single speed gear. Pumps up to 4-in. barrel may be worked at thirty strokes per minute; unless the height the water has to be raised is great, the speed of the larger pumps should vary from twenty to twenty-five strokes per minute according to the lift.

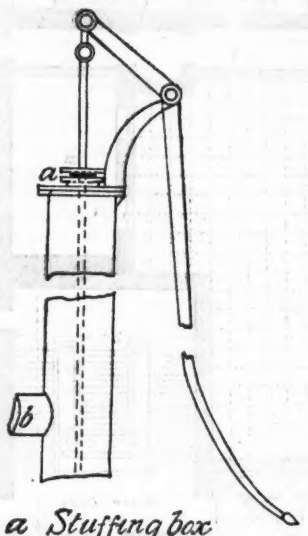
The plunger or force pump (Fig. 6) consists of a cylinder or working barrel, in which the piston or plunger works up and down through the stuffing-box or gland. The plunger is either hollow or of solid metal, according to the conditions required, and may consist of one or more plungers, each working in its own barrel. The working barrel is of cast iron, and is connected at one end with the delivery-pipe, the valve-box and air-vessel beyond. The suction-pipe and valve-box are at the other end. The pump works either horizontally or vertically, and its action is as follows: in the upstroke of the plunger a vacuum is created which allows the water to enter through the suction-pipe into the working barrel and body of the pump, filling the space left by the plunger. The water is retained by a clack or valve at the top of the suction-pipe, and is again forced by the downstroke of the plunger through the delivery-pipe, being retained by the delivery-valve, and rises with each successive stroke until it reaches the point of discharge. During the up-stroke of the plunger the forward motion of the water through the delivery-pipe would cease, and the discharge would therefore become intermittent instead

Fig 3.



a Working barrel
b Bucket
c Clack
d Suction

Fig 4.



a Stuffing box
b Delivery main

Fig 5.

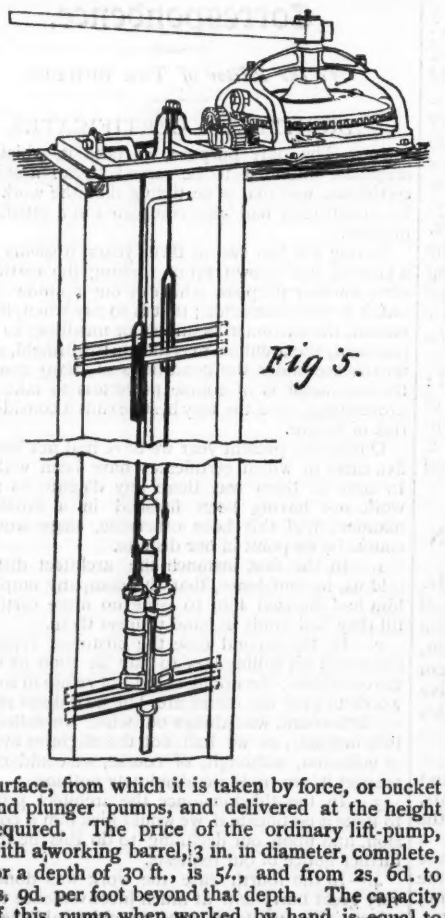
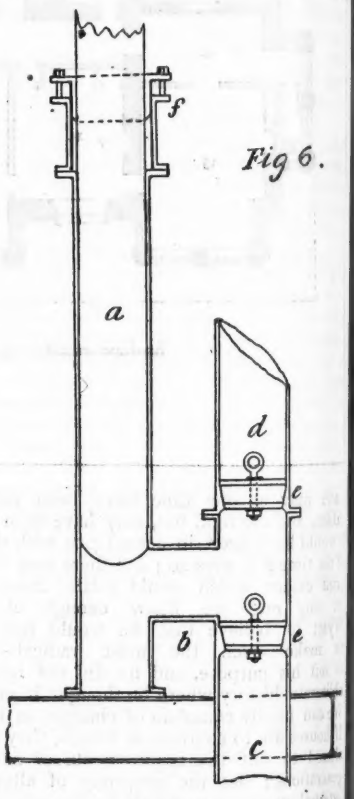


Fig 6.



a Plunger
b H pipe with doors
c Suction
d Rising Main
e Valves
f Stuffing Box

continuous. This is avoided by the use of an air-vessel, the air of which being compressed during the descent of the piston or plunger re-acts and forces the water through the delivery-main during the up-stroke. This prevents the shock to the working parts caused by the force which would be required to overcome the inertia of the water, and at the same time economises the power of the engine by keeping the water in constant motion.

The plunger or force-pump possesses great advantages over the lift-pump in most cases where it can be employed, and is especially suitable where considerable height has to be overcome or where continuous working is required. It is not suitable for positions where the water is likely to rise above the pump, owing to the difficulty of access to the working parts in case of accident. In deep wells, therefore, the lift-pump with open top is to be recommended for the deep pumping, and the plunger for subsequently raising the water to the required elevation.

The lifting and forcing pump, or bucket and plunger combined (Fig. 7), was invented by

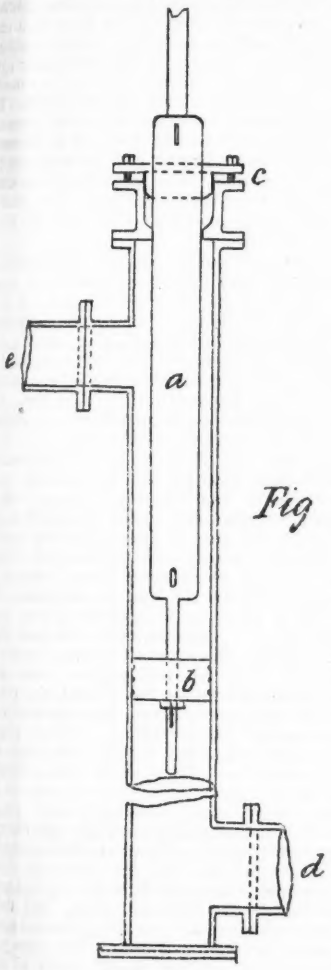


Fig 7.

a Plunger
b Bucket
c Stuffing Box
d Connection to Valve Chamber
e Rising Main with Stop back Valve & Air Vessel

Perkins, and introduced at the Lambeth Waterworks in 1848. The construction is similar to that of the forcing-pump described above, except that the ram or piston has a bucket attached by a rod to its lower end. The upper portion is enlarged to form the ram, having a sectional area equal to one-half that of the working barrel. The theoretical quantity of water which rises into the working barrel at each up-stroke of the bucket is equal to the capacity of the barrel through which it ascends, one-half of which quantity rises in the delivery or rising main on the descent of the bucket, and the remaining portion is discharged during the following up-stroke. The delivery from the pump is therefore continuous. This is one of the best forms of double-acting pump, as it possesses nearly all the simplicity of the single-acting pump, and is free from the defects of the four-valve pumps. The quantity of water delivered at the up and down stroke is no more than with a pump with single-action, the difference being that the double-action gives a continuous, and the single-action an intermittent, delivery. This form of pump is used in nearly all the large waterworks.

Horizontal engines and pumps, mainly direct-acting, are frequently used for small supplies, and improvements, during the last few years have justified their use in many of the largest waterworks. The Worthington, Deane, Davidson and other well-known types give good results; they are principally used for forcing to service reservoirs.

The pump-trees or pipes, which constitute the suction-pipe and rising main, form so important and so costly a portion of the pumping apparatus as to require careful design. They are usually 9 ft. long, and consist of cast-iron pipes with flanges, or of wrought-iron or steel tubes, rivetted or welded with flanged joints. The cast-iron pipes should be made of hard mottled-grey iron, re-melted in the cupola, and cast vertically in loam, care being taken to keep the metal of uniform thickness and truly cylindrical. In open-topped pumps the diameter is made from ½ in. to 1½ in. greater than the working barrel, so as to enable the valves to be withdrawn when repairs are necessary. In close-topped pumps working through a stuffing-box or gland the rising main is usually ⅔ the area of the working barrel. The pipes, whether constructed of cast or wrought iron, or of steel, have the flanges machine-faced, so as to be perfectly plumb when bolted together. The joints are either made with red lead or flannel steeped in tallow, and bolted tightly together. In considerable heights of rising main it is the usual practice to reduce the thickness of metal every 54 ft. The wrought-iron or steel tubes for large diameters should be rivetted together with a butt strap joint, and the flange formed with an angle-iron shrunk on the body of the pipe and rivetted. The smaller sizes are usually welded or solid-drawn. The pipes should all be painted, or, in the case of small tubes, galvanized.

The following table gives the weight and thickness of cast and wrought iron pipes:—

Cast-iron Flanged Pipes.				Wrought-iron Tubes.	
Diameter.	Thickness.	Weight of 9 ft. lengths.		Thickness B. W. G.	Weight per foot.
in.	in.	cwts.	lbs.		lbs.
1½	—	—	—	14	1·37
2	—	—	—	14	1·81
2½	—	—	—	12	2·24
3	⅜	1	12	11	2·68
3½	—	—	—	10	3·11
4	⅜	1	49	10	3·55
4½	—	—	—	10	3·98
5	7/16	2	10	9	4·42
5½	—	—	—	9	4·85
6	7/16	2	65	9	5·29
7	½	3	32	—	—
8	½	3	81	—	—
9	9/16	4	80	—	—
10	9/16	5	23	—	—
11	9/16	5	79	—	—
12	⅝	6	103	—	—

GENERAL BUILDING NEWS.

RESTORATION OF TRELLECK CHURCH, MONMOUTH.—This church, which is of the architecture of the thirteenth century, has just been re-opened by the Lord Bishop of Llandaff, after undergoing restoration at a cost of about 2,700*l.* The principal additions and alterations now completed are five clearstory windows, two new aisle windows on the north side, new tracery east window, opening out of the great western arch, raising of chancel arch, re-seating throughout, lightning conductor, and restoration of all stone and timber work, and retiling the entire building. It has been restored as far as possible on the lines of the ancient building. The architect has been Mr. E. H. Lingen Barker, London and Hereford.

MANCHESTER TALMUD TORAH SCHOOL CHEETHAM.—The corner-stones of the Manchester Talmud Torah School for the Hebrew education of Jewish children were laid on the 6th inst. The buildings are being erected in Bent-street, Cheetham, and the western end of the structure when completed will abut upon a new street, which it is proposed to call Torah-street. At present only a portion of the projected scheme is being carried out. This consists of three class-rooms, and a large hall, the latter being 50 ft. by 20 ft. It is proposed ultimately to add two wings to the school. At present accommodation is provided for from 120 to 150 children, and the estimated cost is about 1,200*l.* The architects are Messrs. Ogden & Charleton, Manchester; and the builders Messrs. W. Brown & Son, Salford,

AUCTION MART, SKIPTON, YORKSHIRE.—A new auction mart, for the Live Stock Auction Mart Company, Limited, has just been opened at Skipton. The new buildings (designed by Mr. J. W. Broughton, architect, Skipton), comprise a sale-ring and office, three double shippons with laying for 124 head of cattle, six loose boxes, boiler-house and store-room, and lofts; and a passage at each end of the shippons, respectively 10 ft. and 9 ft. wide. The full length of the new buildings is 156 ft., and the widths 75 ft. and 56 ft. They cover altogether about a quarter of an acre of ground. The building of the sale-ring is in the form of a semi-decagon with pilasters at each angle and circular top iron lights between; the roof trusses are of iron, carried by eight iron columns, and support a louvred ventilator. Seating is provided on galleries and inside the railings of the ring for upwards of 200 people. Within the railings is paved with setts. The office, which is within this portion of the buildings, is of wooden framing filled in with glass, and in front of this is a rostrum. There are two entrances for cattle to the first main passage, from which access is gained through upward sliding doors to waiting-pens at each side of the ring, and also to the three main gangways of the shippons. From this passage also is the customers' entrance to the office and entrance to the auditorium. The shippons are about 73 ft. by 65 ft., the roof of which is in three bays carried on iron columns. Over the centre bay is a louvred ventilator. The window-frames are iron, the lower part being half-trellis. The lighting for the shippons is principally from the roof, Helliwell's patent glazing having been adopted. The floors are all concrete, grooved in the form of setts, and with channels at the sides of the gangways. From the second passage access is gained to the six loose boxes and to the store-room and boiler-house. The whole of the buildings are built with Burnley brick with stone dressings, and covered with Welsh slate. The contractors are: Mr. G. Bradley, masons' and bricklayers' work; Messrs. Wm. Roberts & Son, joiners' and carpenters' work; Mr. Foster Horner, plumber and painter's work; and Messrs. Ellison & Fawcett, ironfounders, all of Skipton; Messrs. Manley & Hartley, of Nelson, supplied the cattle-pens and sundry other ironwork; Messrs. A. Dougill & Co., of Leeds, supplied and fixed the iron roof; and the slating was done by Mr. Stanworth, of Burnley.

HOTEL PREMISES, NEWCASTLE.—The Eldon Dining Hall and Grill Room, Grey-street, Newcastle, has just been re-opened, after having been closed for more than two years. On Whit Saturday, 1892, the roof above the dining hall in the basement gave way, necessitating the closing of the premises until they were rebuilt. The interior of the building was completely taken out, and the front razed to the ground. The new building has been erected by Messrs. Walter Scott & Co., Limited, from the designs of Messrs. Oliver & Leeson, architects, Newcastle. The building is on the same site as before, but instead of three shops in front there are now only two. The dining-hall and grill-room is situated in the basement, the entrance being from Grey-street. The building consists of five stories.

MARKET HALL, GOOLE.—The Goole Local Board have approved of the plan prepared by Mr. W. J. Tennant, Pontefract, for the erection of a new market hall at a cost of 20,000*l.*, in place of the one burnt down.

WESLEYAN CHAPEL, GREAT KELK, YORKSHIRE.—A new Wesleyan chapel was opened on the 10th inst. at Great Kelk, in the Bridlington Circuit. Mr. S. Dyer, of Bridlington Quay, was the architect, and Messrs. Bastiman & Gutherlass, of Kilham, the contractors.

NEW LIBRARY, ATTERCLIFFE, SHEFFIELD.—A new library has just been erected at Attercliffe, at the corner of Leeds-road and Beverley-street. On the ground floor are the lending department, a ladies' reading-room, and a committee-room, and on the first floor is the reading-room, which is capable of accommodating 140 persons, with files for twenty newspapers. The entrance-hall is paved with mosaic tiles. The building is of brick, with stone dressings, and the architect was Mr. C. F. Wike, the City Surveyor.

TECHNICAL INSTITUTE, NEWBURY, BERKS.—Mr. Alfred Waterhouse, R.A., of Yattendon Court, opened the new Art and Technical Institute at Newbury on the 8th inst. The new buildings adjoin those of the Literary and Scientific Institution, and on the ground floor there are three rooms provided for carrying on classes in woodwork, chemistry, modelling in clay, and shorthand. The library is situated as formerly. The first-floor is reached by two staircases. For the museum two rooms have been retained in the old part of the premises. The School of Art, on the first floor of the new buildings, is 42 ft. by 28 ft. Immediately adjoining this room is a gallery for displaying works of art, and a private room for the use of the Head Master. The exterior of the building is of red brick. The architect was Mr. Walter H. Bell, and the contractor, Mr. Samuel Elliott.

WORKHOUSE INFIRMARY, GUISBOROUGH.—The new Workhouse Infirmary, Guisborough, which is being erected from the plans of Mr. Thomas Stokes, architect, Thirsk, is now nearing completion. It is being warmed and ventilated by means of Shorland's patent Manchester stoves, patent exhaust roof ventilators, and improved inlet panels, the same being supplied by Messrs. E. H. Shorland & Brother, of Manchester.

CATHOLIC SCHOOL-CHURCH AT HYTHE.—The opening of the new Catholic School-Church at Hythe took place on the 6th inst. The building has been erected by Messrs. G. H. Denne & Son, of Deal, from plans of Mr. A. E. Purdie. The structure is of

red brick, relieved with mouldings, string-courses, &c., and consists of nave, chancel, Lady Chapel, and sacristy. Sittings are provided for 300 persons. The high altar and reredos have been designed in keeping with the building, and are enriched with panels painted in oils by Mr. J. L. Ryan, of London and Seabrook. The architecture is Early English. Over the chancel is a belfry, which is covered with lead. The windows are of cathedral glass, those of the chancel being richer in tone of colour than those of the remainder of the building. The church portion of the latter is in the upper story, the part devoted to scholastic work being below, and this provides accommodation for 225 children.

Technical Schools, Winsford, Cheshire.—The foundation-stone has just been laid of the Verdin Technical Schools, Winsford. The site of the schools immediately adjoins the Over Board Schools. The land falling sharply towards the brook at the back, opportunity has been taken of this deflection for placing the plumbers' and fitters' room, carpentering and joinering room, and the accommodation requisite for the mechanical system of heating and ventilating, all at this end of the building, a floor lower than the general ground floor level. The main entrance is in the front elevation facing High-street, and is surmounted by a large "Flemish" scroll gable, and flanked on either side by subordinate gables. Two subordinate doorways, similar in character and treatment to the principal entrance, also are provided. These provide direct communication with the male and female sections of the structure respectively, while the front entrance leads directly through an ante to the gymnasium. Mullioned and transomed windows are provided throughout the three principal elevations (excepting to the Art School). The front elevation, and as far as the two large gables on each of the side elevations, is to be faced with J. C. Edwards' Ruabon red stock bricks, and all dressings throughout, window headsills, mullions and transomes, doorways, chimney-stacks, gable-coping, plinth, &c., are being executed in red terra-cotta from the same firm. The whole of the roofs, where exposed to view, are being covered with deep red Ruabon roofing tiles. Internally the joiners' work generally is being executed in St. John's pine, stained and twice varnished. The corridors are to be plastered, having a wood dado mould and skirting, and the floors paved with wood blocks. The gymnasium floor is to be formed of two thicknesses of floor boards, and the walls to same are having a dado 4 ft. high of salt-glazed bricks. The entrance and hall for each sex, and also to gymnasium, are proposed to be paved with encaustic tiling, laid on a cement bed. The building is to be warmed and ventilated by a patent mechanical system, prepared by the Blackman Smead Company, of London and Manchester, under the supervision of the architects. On the ground floor the following rooms are given:—Top-lighted gymnasium 50 ft. by 37½ft., with separate boys' and girls' dressing-rooms and lavatories, also provided with gallery 37 ft. by 9 ft., and having access and egress by two staircases, one from each adjacent corridor. Four class-rooms, each 22 ft. by 21 ft. 6 in., are provided. The superficial area of these rooms can be thrown into one large room 88 ft. by 21 ft. A chemical laboratory, 24 ft. by 19 ft. 6 in., is placed at the farthest end of the boys' corridor, and away from the general teaching-rooms. Three rooms will be arranged in the Art section of the buildings—viz., painting room; drawing from cast; and elementary art room. This suite of rooms is directly approached from the girls' corridor, as well as a wash-house, an ironing-room, &c., for the teaching of laundry work. Ample lavatory and cloak-room is provided for each sex, adjacent to their respective entrances. A committee room, with separate lavatory, is also provided, and on the first floor over the cloak-room, male and female teachers' rooms are planned, being partly in the roof, with separate lavatory, &c., and entered through an ante from the landing of each staircase. The erection of the whole of the work has been entrusted to Messrs. James Fowles & Son, Winsford, from the designs and under the supervision of Messrs. Woodhouse and Willoughby, of Manchester, whose scheme was chosen in open competition.

SANITARY AND ENGINEERING NEWS.

Railway Extension in the Highlands.—At a meeting of the directors of the Highland Railway at Inverness on the 10th inst. the offer of Messrs. Charles Brand & Son, Glasgow, was accepted for the construction of the last section of the new direct line to Aviemore, extending from the ticket platform at Inverness to Culdoich, in Strathnairn, a distance of over seven miles. The contract price is 104,900*l*. Under the original contract, which was recently renounced by Messrs. Mackay, the price was 118,000*l*. A considerable portion of the work has, however, been executed, a sum of over 31,000*l*. having been expended. The works still remaining to be executed consist of the completion of the stone viaduct over the River Findhorn, over 575 yards long, and rising to a height of from 58 to 129 ft., the completion and construction of over thirty bridges and culverts, and excavations &c., to the extent of over 440,000 yards.

A New Railway to the Western Highlands.—The West Highland Railway, opened on the 11th inst., is about 101 miles long, starts from Craigendoran (twenty miles from Glasgow), and proceeds by Garelochhead, Arrochar, Tyndrum, and Rannoch and Fort William, to its present terminus on the Caledonian Canal. It has been constructed by Messrs. Lucas & Aird.

Sewerage Works, West Bridgford.—West Bridgford is a suburb of Nottingham, and through a rapid increase in the population, the Local Board find it necessary to extend the sewerage system, and improve the method of sewage disposal. An open competition was advertised, and after examining the plans, the Local Board selected a scheme prepared by Mr. W. H. Radford, C.E., of Nottingham, and decided to engage him as engineer for the proposed works. It is proposed to lay a 15-in. iron sewer about 15 ft. below the subsoil water level, to convey the sewage from a rapidly-extending district to the present pumping station. A new storage tank, about 30 ft. deep, will be put in, to prevent the sewage backing up the sewers when pumping is stopped. There will be two new pumps, and a duplicate engine worked from the present boilers. The present sewage farm will be drained, and improved carriers laid down. It is proposed to apply for a loan of 5,000*l*. for these works. In addition to these works, there will be some miles of sewers in private streets which will be paid for by the private owners.

Sewage Works, Melton Mowbray. — A Local Government Inquiry was held on Wednesday at the Town Hall, Melton Mowbray, before Colonel J. Ord Hasted, RE., of the Local Government Board, for permission to borrow 4,050*l*. for improvements at the sewage works. Mr. Edmund Jeeves, the Surveyor to the Local Board, explained the scheme, stating that, after investigating numerous systems of sewage disposal, the Board had decided to adopt the international system of Ferozone and Polarite. The sewage is at present treated by the lime process, which, we are informed, has given rise to serious complaints of pollution and the destruction of fish life. The Board have now determined to abandon the old system of tanks and to construct others upon the continuous upward flow self-cleansing principle as embodied in the Candy Tank, which has been also adopted by H.M. Goverment. In addition to the Polarite filters the works will be provided with three clarifiers to economise chemicals and save labour. There was no opposition, and it is intended to carry out the work forthwith.

FOREIGN AND COLONIAL.

France.—M. Paul Blondel, a former "Prix de Rome" man, has been appointed architect to the Louvre and Tuileries in place of the late M. Guillaume. —— The Department of Bâtiments Civiles having recognised the insufficiency of the Luxembourg Museum for the present demands on it, has recommended the erection of a second museum in the gardens of the Luxembourg.—— MM. Charles Yriarte and Henri Havard have been appointed Inspectors-General of Fine Arts.——A civil engineer, M. Villain, has brought forward a new project for a metropolitan railway of an economical kind, the main point of which consists in prolonging and meeting the Vincennes and Moulineaux lines, and giving them a common central station in Paris.——Baron Rose, a former Councillor of State, has left to the Cluny Museum a fine collection of ancient tapestries and furniture.——The Government has decided on the reconstruction of the School of Decorative Art at Limoges, and also of the Adrien Debouche Museum in the same town, at a cost of about 1,200,000 francs.——There is talk of transforming entirely the whole of the old quarter of Marseilles behind the Bourse. The cost of the proposed improvements is estimated at 50,000,000 francs.—— The municipality of Bordeaux is considering a scheme for a grand new street between the principal theatre and the Gare du Midi.——An architectural competition is to be opened by the Préfecture du Nord for the construction of two prisons, one at Douai, the other at Lille, at an estimated cost of over a million francs.——Madame Paul Baudry, the widow of the eminent painter, has presented to the museum of La Roche two fine pictures by her late husband.—— The Duc de Trevise has left to the town of Ajaccio an entire collection of objects which belonged to Napoleon.——The series of paintings by M. Tissot, in illustration of the Life of Christ, which was exhibited at the Champ de Mars Salon this year, have been bought by the "Maison Mamé" at Tours, to serve as illustrations to a religious publication. ——The widow of the late Jules Ferry has had erected to his memory, in the cemetery of Saint-Dié, a monument consisting of a high pyramid in green granite on a basement decorated with acanthus leaves. In front of the pyramid is the bust of Ferry in bronze, after a marble one by M. Guillaume, the sculptor. A statue of Ferry, on which M. Mercié is at present engaged, is to be erected not far from the above-mentioned monument.——The death is announced, at the age of 72, of the eminent animal sculptor, Auguste Caïn, an old pupil of Rude. We shall have more to say of him and his work in a future communication. A few days before his death he had presented to the city of Paris his fine group of "An Eagle and Vulture Fighting over the body of a Bear," which will probably be set up in the Square Montholon.

MISCELLANEOUS.

Builders' Clerks' Benevolent Institution.—A special general meeting of this Institution for the election of two pensioners on the relief fund, and of one child to the benefit of the orphan fund, took place at the offices of the Institution, 21, New Bridge-street, E.C., on the 15th inst., the President, Mr. William Shepherd, occupying the chair. There were four candidates for the two vacancies to the widows' pension (of 20*l*. per annum), viz., Mrs. S. A. Bennett, Mrs. S. Hill, Mrs. S. Lovett, and Mrs. M. Smith. At the close of the poll Mrs. Hill and Mrs. Smith were declared duly elected. For the orphan vacancy, Thirza M. Smith (a daughter of one of the successful applicants for the pension), being the only candidate, was duly elected by show of hands. At the close of the proceedings, the scrutineers (Messrs. Ernest S. Rider, Thomas Stirling, jun., and H. W. Parker) were thanked for their services. A vote of thanks was also accorded to the President for his kindness in attending and presiding as chairman of the evening.

Window, Beamish Church, Durham.—The 5-light window of this church has just been filled with stained glass. In the centre light Our Lord is represented as seen in the Apocalypse in a long white dress girded with a golden girdle and crowned. He stands in front of a vine in the form of a cross with arms outstretched, thus representing poetically the priest and the victim. In the two inner lights are figures of adoring angels. In the two outside lights are depicted the Virgin and St. John. The large tracery openings contain at the sides Moses and Elias as prophets of the Redeemer, and in the centre the pelican feeding its young, still carrying out the idea of the Sacrament. The work has been carried out by Messrs. Percy Bacon & Bros. The window was executed from instructions of Mr. C. Hicks, architect, Newcastle.

Reredos, Stonyhurst College, Blackburn.—During the Centenary Festival at Stonyhurst, a new reredos in the boys' chapel was dedicated. It is of carved oak, by Mr. Hedly, of Newcastle, containing four paintings, each 6 ft. square, illustrating scenes from the life of St. Aloysius. They were executed by Messrs. Percy, Herbert, and Archibald Bacon, acting together as Percy Bacon Brothers, London. The whole was under the superintendence or Messrs. Dunn & Hanson, architects, Newcastle.

Crystal Palace School of Engineering.—The certificates awarded for the summer term to the students the Crystal Palace School of Practical Engineering were distributed on the 10th inst. in the base of the south tower by Mr. William Shelford, member of the Council of the Institution of Civil Engineers. The Chairman of the Company, Mr. G. T. Rait, in addressing the students, dwelt upon what engineering was, what was its position and prospects, and what part they took in it. All over the world there was evidence of abundance of work for the engineer who was deserving and industrious. He wished the rising generation would properly realise the responsibilities and opportunities before them. Every young engineer should take the earliest advantage of a visit to America. The Crystal Palace School had done much good, and was capable of a great deal more, and none of them would regret the effort to put honest work into their calling. —Mr. Biggs moved a vote of thanks to the examiners, which was acknowledged by Mr. Benedict.—Mr. Wilson (principal of the school), said they had now been established twenty-three years, and their members were scattered all over the globe, and some of them held very high positions. The term just closed had been one of hard work, nearly all the students having been determined to make the best use of their time. They got about sixty new students every year, and mostly from the recommendation of old students.—Mr. Rait, in moving a vote of thanks to the Chairman, announced that the directors of the Palace intended to hold a South African Exhibition there, to be opened next May, and he thought it would be of especial interest to engineer students.

Memorial Window, Coleshill Church, Warwickshire.—The west window of Coleshill Church has just been filled with a stained-glass memorial window, the subject treated being that of the Epiphany. The inscription is: "To the Glory of God and in affectionate memory of George Digby Wingfield Digby, of Sherborne Castle, Dorset, and of Coleshill, Warwickshire, who restored this Church in 1859, and died in May, 1883, this window is placed by desire of his widow, who died in June, 1891, and by his relations and friends, 1894." Mr. T. W. Camm, of Smethwick, designed the window, and it was executed in his studio.

Glasgow Building Trades Exchange.—The Building Trades Exchange of the City and District of Glasgow (Limited), which is situated at 50, Gordon-street, was opened on the 8th inst. by the Hon. the Lord Provost. The honorary President, Sir William Arrol, presided, and, in his introductory remarks, explained the objects of the Exchange. Its origination was due to what had been seen by several gentlemen connected with the Glasgow building trades in connexion with a similar institution in America. The friction between the various sections of the building trade had been so much reduced by means of the American Exchange, compared with

what it was on this side of the water, that the members who had inquired into its working thought it desirable that such an institution should be started in Glasgow. So far as he knew, it had not been instituted for the purpose of any combination. It was initiated to enable builders, measurers, architects, or any other class of the community to meet and discuss any matter connected with the building trades, and all members met on the same level. Further, the Exchange had been started for the purpose of guaranteeing that members who undertook certain work would carry it out according to the specification. If they failed it would be imperative upon the committee to deal with the matter.—The Lord Provost said that one of the members of the Exchange had said that he should join this institution, as the Glasgow Corporation was now becoming a very large builder. He was not quite clear that that was a sound argument. He agreed in some measure with the Corporation building to show an example, but he did not approve of the Corporation becoming builders as builders. There were times when they had to step into the breach, and he was quite sure that the information they would get in such an Exchange as this would be of great value to the Corporation, as well as to the members. The success of this institution would depend on the spirit of comradeship with which they worked it. If the slightest trace of jealousy or feeling crept into it its usefulness would be destroyed, but if it was carried out on the lines indicated by Sir William Arrol he had no doubt it would meet a felt want. They had many successful Exchanges in Glasgow, and he did not see why the Exchange connected with the one prosperous trade in Glasgow, the building trade, should not have an equal success.

LEGAL.

IMPORTANT POINT UNDER THE PUBLIC HEALTH ACT, 1888.

In the Queen's Bench Division on the 9th inst. Mr. Justice Mathew and Mr. Justice Kennedy, sitting as a Divisional Court, had before them the case of Thorold *v.* the North Ormesby Local Board, it being an application on behalf of Mr. Thorold for a *mandamus* to the Board to approve certain plans.

The case raised a question of some importance as to the principle upon which Section 3 of the Public Health Act, 1888, as to power of Local Boards as to the erection of buildings beyond the front main wall of houses on each side, is to be construed. The section in question enacts that it shall not be lawful in any urban district, without the written consent of the Urban Authority, to erect or bring forward any house or building in any street or any part of it—such building—beyond the front main wall of the house or building on either side thereof in the same street. The facts were shortly as follows:—The Local Board District of Ormesby has a population of something like 9,000, and comprises in its area two places, viz., the village of Ormesby, with a population of about 150, and the town of North Ormesby, with a population of over 8,000. North Ormesby is about two miles from the village, and has sprung into existence within the last fifty years. Ormesby-road is a road leading from Middlesbrough and North Ormesby to the village of Ormesby, and part of it is named Westbourne-grove, which forms part of North Ormesby, and was treated by the Local Board of Ormesby as one of the streets of that place. White-house-lane commences at a point where North Ormesby as a town ceases, and continues for nearly two miles to the village. For the last sixteen years the Local Board have treated West-terrace and Westbourne-grove as a public street, and have lighted and watered it. They have also from time to time served notices upon the frontagers of the street under section 150 of the Public Health Act, 1875, and the work has been done by or charged on the frontagers. The whole of the east side of West-terrace has been built upon some years since, and comprises some twenty-two houses, and nearly the whole of the east side of Westbourne-grove is built upon, and comprises villa residences. In November, 1893, the applicant built a dwelling-house on the west side of Westbourne-grove, at a distance of 330 ft. from Grove-road, setting back the house 20 ft. from Westbourne-grove. The only approach to the house, which is a small one, is with a door leading into the house facing Westbourne-grove. The applicant submitted to the Board plans of four small cottages he intended to erect in Westbourne-grove, such plans showing that each cottage had a frontage of 18 ft. to Westbourne grove, and that the front main walls of the cottages would be only 10 ft. from Westbourne-grove. The distance between the applicant's residence and the proposed cottages to be erected was about 90 ft., and the intervening space consists of land purchased by him for building. The Local Board being of opinion that the "building line" in that part of Westbourne-grove, north of Grove-road, was fixed by the applicant's house, the front main wall of which was 26 ft. from Westbourne-grove, and that it was undesirable to have houses erected in Westbourne-grove in an irregular line, rejected the plans as being in contravention of the section of the Act of 1888 before referred to.

At the conclusion of the arguments of counsel, Mr. Justice Mathew, in giving judgment, said that each case must be determined on its own circumstances, and the enactment construed reasonably. When it was proposed to take away a man's land it was necessary to look carefully into the circumstances. It appeared that Thorold had built himself a house in a certain line and then proceeded to build four cottages at a distance of 90 ft. in the same road, the front walls of which would project slightly beyond that line. Where there was no continuance line of building of any kind, the enactment could hardly apply. Where land was laid out for building purposes it might be different, but they (their Lordships) had to deal with the case as it stood. A house had been erected, and buildings were proposed on the opposite side of the road. He could not see why they were objected to. The only answer the Board made was that they were entitled to exercise a discretion—which, however, turned out to be caprice—to say how, under such circumstances, the buildings on the opposite side should be used. It appeared to him that there was no evidence of the existence on the side of the original buildings of any line of frontage.

Mr. Justice Kennedy concurring, their Lordships made the rule absolute for a *mandamus* to the Board to approve the plans.

Mr. Scott Fox appeared as counsel for the applicant, and Mr. Roskill for the Board.

MEETINGS.

FRIDAY, AUGUST 17.

Architectural Association.—Annual Excursion, Wells (continued).

Sanitary Inspectors' Association.—Annual Summer Meeting, Ramsgate.

Incorporated Association of Municipal and County Engineers.—Members leave London to take part in a Meeting at Brussels.

SATURDAY, AUGUST 18.

Architectural Association.—Annual Excursion, Wells (concluded).

Junior Engineering Society.—Summer Excursion, Cardiff and District.

SATURDAY, AUGUST 25.

Liverpool Engineering Society.—Excursion to the Wirral Railway Works and Dee Bridge.

Glasgow Architectural Association.—Visit to New Craig House, M'Ewan Hall, and University Union, Edinburgh.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

14,024.—WATER-CLOSETS: *J. Jones and another.*—The improvements which are the subject of this patent relate to the construction of water-closet traps with an air chamber at or near the upper bend, and forming a flushing rim with a large outlet hole on the underside, opposite the trap mouth. A specially-moulded piece of earthenware is introduced into the down flow part of the S trap, and where the flanges on the meeting ends are to be connected they have a cork washer fitted between them.

15,369.—EXTRACTING VENTILATORS AND COWLS: *T. Whitehead.*—According to this invention, improvements in construction are introduced with the object of gaining greater extracting power, by reducing the weight of the working parts and by increasing the driving-power by the use of a series of wind-chambers in connexion with improved driving-vanes.

15,992.—BRICK-MAKING MACHINERY: *W. Johnson.*—This patent relates to making "stiff plastic" bricks. The material after being crushed or otherwise prepared is thoroughly mixed, pugged, and kneaded to the required stiffness, and afterwards shaped and pressed ready for conveyance to the kiln without first having to dry the bricks. Mechanism for performing all these processes is described in the specification.

5,792.—DRY CLOSETS: *R. C. Sayer.*—According to this invention heat is used to dessicate the soil, which is dealt with in a reducer, the liquids being led away and filtered, the solids reduced to dust by heat and put into a receptacle for extraction, and the residual gases are sent through a filter to the atmosphere.

9,271.—CASEMENT WINDOWS: *W. James.*—The object of this invention is to construct a casement window, without sacrificing the advantages of rebates and other contrivances for making it water-tight, to be opened inwards and outwards, so that while attaining the convenience of opening outwards for ordinary use, it can be opened inwards for cleaning, repairing, &c. This is effected by having an inner frame fixed in the sliding sash.

9,682.—SKYLIGHTS: *A. Schmeil and another.*—The skylight which is the subject of this invention has for its main feature a notched bridge made in one piece with the frame of the skylight, and also with fittings or flanges, guard and angle-piece, all to ensure a perfectly damp-proof closing of the skylight and enabling it to be readily raised and opened when required.

10,690.—AUGER-BIT: *A. G. Brown.*—The cutters are made separately, and in various sizes, to be attached to a common shank, the idea being to provide an auger-bit with which holes of various sizes can be cut, and which will be extremely portable, as the cutters occupy but little space, and only one shank is necessary.

11,093.—FACING BRICKS: *M. Villaret.* These are of larger surface than those generally employed, and not only answer the purpose of getting through the work more rapidly, but also give greater diversity of surface, as, for instance, the old small sizes can be alternated with larger sizes, or the smaller bricks may be used in small surfaces or members, and the larger where greater surfaces are to be covered.

NEW APPLICATIONS FOR LETTERS PATENT.

JULY 30.—14,599, E. Groebe, Preservation of Wood.—14,605, A. Ewens, Sash Fastener.—14,612, J. Baker, Disinfecting Water-closets, Urinals, Sinks, &c.

JULY 31.—14,653, C. Foulger, Water-closets, Urinals, Slop-sinks, &c.—14,688, J. & A. Binks, Clearing congested Drains and Sewers.—14,699, W. Whittaker, Fire-proof and Waterproof Ceilings and Flues.—14,701, R. Davidson, Window-sash Fastener.

AUGUST 1.—14,710, J. Day, Waste Water-closets.—14,715, J. Quarnby, Traps for Drains, Water-closets, &c.—14,752, L. Robson, connecting Sash-cords to Window-sashes.

AUGUST 2.—14,779, L. Seager, Jointing Pipes, &c.—14,786, W. Sharp and W. Cruickshanks, Multiple Flushing Syphon for giving any number of syphon flushes from large cisterns.—14,807, R. Batey, Window Fasteners.—14,812, A. Phelps, Window-sash Fastener.—14,823, O. Hocking, Windows.—14,843, W. Thrift, Draught Preventer for Doors.—14,846, L. Mack, Manufacture of Cement from schist and bituminous marl.

AUGUST 3.—14,877, J. Travis, Sash-fasteners for Windows.—14,879, A. Taylor, Service Flushing Cisterns.—14,881, T. Biggs, Double Seal Scour-out Closet.—14,916, P. Stiens, Sanitary Pipe.—14,934, A. Muirhead and G. Hackford, Manufacture of Artificial Stone, &c.

AUGUST 4.—14,952, T. Knowles, Revolving Receptacles for Waste Water to be used in the Flushing of Water-closets Flushed with Waste Water.—14,960, W. Griffith, Butt and Hinge for Doors and Gates.—14,998, W. Wagner, Ornamental Covering for Floors and Walls.

PROVISIONAL SPECIFICATIONS ACCEPTED.

1,494, F. Weiss, Fastenings for Doors, &c.—11,756, S. Tomlinson, Windows.—11,894, S. Burgess, Hooks and Catches for Doors—11,980, J. Lakin and C. Johnson, Raising and Lowering Windows in Sashes, and as a Draught and Dust Excluder.—12,609, J. Hulton, Flooring Cramp.—13,085, J. Booker, Hinges.—13,491, C. Barr, Sash-fastener.—13,521, T. Wyatt, Clamping of Floors, Joinery, &c.—13,556, S. Hill and R. Hodges, Opening and Closing Fanlight Windows, &c.—13,731, W. Ward, Turn-Screw.—13,860, D. Dawson, Sash-fasteners.—13,867, H. Fletcher, Chimney Tops.—13,926, J. Fillol and others, Treatment of Wood for Preserving, &c.—14,018, J. Russell, Imitation Stained Glass.—14,027, H. Dawson, Sliding and Hinged Window-sash and Door-fasteners.—14,081, F. Stolte, Fireproof Ceilings and Floors.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

15,486, E. Man and J. Hopwood, Automatic Switch for Electric and other Light, applicable to a Door.—18,615, F. Ham, Air Flaps for Sewers and Ventilation.—3,743, G. Clarke and others, Gullies for Sinks, Downspouts, Lavatories, &c.—8,623, H. Berger, Wood-planing Machines.—12,651, A. Paillet, Hinges or Supports for Gates, Doors, &c

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

AUGUST 7.—By *Debenham, Tewson & Co.*: "The Duke's Head" Beer House, f., Duke-st, Henley-on-Thames, 500*l.*

AUGUST 8.—By *Weatheral & Green*: l.g.r. of 18*l.*, Christie-road, Hackney, u.t. 50 yrs., g.r. 2*l.*, 305*l.*—By *G. F. Francis*: 22, Park-rd., Wandsworth, f., r. 48*l.*, 665*l.*

AUGUST 9.—By *Newbon & Co.*: 43, Brenton-st., Limehouse, f., 205*l.*; 3, Kirkdale-ter., Leytonstone, u.t. 71 yrs., g.r. 8*l.*, r. 45*l.*, 500*l.*; a plot of f. land, Prospect-rd., Woodford, 95*l.*; a plot of c. land, Avenue-rd., 75*l.*—By *H. Ward*: F. stabling, Bollo Bridge-rd., Acton, r. 70*l.* 16s., 760*l.*; four plots of f. land, 330*l.*; stabling, Commerce Yard, Westbourne-grove, u.t. 49 yrs., g.r. 20*l.* r. 65*l.*, 500*l.*—By *Stimson & Sons*: 23 to 45 odd, Granfield-st., Battersea, u.t. 63 yrs., g.r. 54*l.*, 1,420*l.*; 35, 36, Barmston-rd., Catford, u.t. 83 yrs., g.r. 19*l.*, r. 62*l.*, 400*l.*; f. Beerhouse, Dunbar-st., Norwood, "The No. 1," r. 40*l.*, 600*l.*; 3 and 5, Wood-st., f., r. 52*l.* 2s., 520*l.*; 38, 69, Dunbar-st., f., r. 49*l.* 8s., 265*l.*; 3, 5, 7, Chancellor-rd, Dulwich, f., r. 80*l.* 12s., 725*l.*; 8, Bellefield-rd., Brixton, u.t. 70 yrs., g.r. 1*l.*, r. 38*l.*, 420*l.*; l.g.r. of 64*l.*, Vassall-rd., &c., u.t. 7 yrs., 285*l.*; i.g.r. of 43*l.* 19s., Loughboro'-rd., u.t. 10 yrs., g.r. 1s., 260*l.*; 146, Sandringham-rd, Hackney, u.t. 72 yrs., g.r. 6*l.* 10s., 270*l.*; 1, Jenner-rd., Stoke Newington, u.t. 79 yrs., g.r. 8*l.*, 300*l.*; 78, Portland-pl. North, Clapham-rd., u.t. 8 yrs., g.r. 6*l.* 6s., 65*l.*

[*Contractions used in these Lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G. ton	8/0/0	0/0/0
Teak, E.I. ... load	10/0/0	16/0/0
Sequoia, U.S.ft.cu	2/3	2/6
Ash, Canada load	2/15/0	4/0/0
Birch, do.	2/10/0	3/15/0
Elm, do.	3/10/0	4/15/0
Fir, Dantsic, &c.	1/5/0	3/0/0
Oak, do.	2/10/0	4/10/0
Canada	6/0/0	7/10/0
Pine, Canada red	2/15/0	3/5/0
Do. Yellow	2/15/0	5/0/0
Lath, Dantsic, fath	4/10/0	5/10/0
St. Petersburg..	5/0/0	6/10/0
Wainscot, Riga, &c., log	2/10/0	4/15/0
Odessa, crown....	2/10/0	4/15/0
Deals, Finland 2nd & 1st std 100	7/10/0	9/10/0
Do. 4th & 3rd ..	7/0/0	0/10/0
Do. Riga	7/10/0	9/0/0
St. Petersburg, 1st yellow	10/c/0	13/10/0
Do. 2nd yellow	8/10/0	10/5/0
Do. white.....	8/10/0	11/0/0
Swedish.....	7/10/0	16/10/0
White Sea.....	7/0/0	15/10/0
Canada, Pine 1st	22/10/0	29/0/0
Do. do. 2nd....	17/0/0	18/0/0
Do. do. 3rd, &c.	9/10/0	10/10/0
Do. Spruce, 1st	8 10/0	11/0/0
Do. do. 3rd & 2nd	6/10/0	9/10/0
New Brunswick	6/0/0	7/5/0
Battens, all kinds	3/0/0	15/0/0
Flooring boards, sq., 1 in. prep. 1st	0/9 6	0/14 6
Do. 2nd.....	0/7/0	0/11/6
Other qualities—	0/5/0	0/6 6
Cedar, Cuba .. ft.	/3½	/4½
Honduras, &c.	/3½	/4½
Mahogany, Cuba	/3½	/6
St. Domingo, cargo av.	/3	1/6
Mexican do. do.	/3	/4
Tobasco do. do.	/3½	/6
Honduras do. ..	/3½	/5½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	7/0/0	18/0/0
Bahia	6/0/0	17/0/0
Satin, St. Domingo.....	0/0/5	0/1/0

TIMBER (*continued*).

Satin, Porto Rico	0/0/6	0/1/6
Walnut, Italian ..	0/0/3½	0/0/7

METALS.

Iron—Pig, in Scotland .....ton	2 2/3½	0/0/0
Bar, Welsh, in London	5/12/6	5 15/0
Do. do. at works in Wales.....	5/2/6	5/5/0
Do. Staffordshire, in London.....	6/0/0	6/10/0
COPPER—British cake and ingot	41/5/0	41/15/0
Best selected ..	41/15/0	42/5/0
Sheets, strong ..	50/0/0	0/0/0
Chili. bars	39/7/6	39/12 6
YELLOWMETALID	0/0/4	0/0/4½
LEAD—Pig, Spanish.....ton	9/15 0	0/0/0
English com. brands.....	9/15/0	9/17/6
Sheet, English, 6 lbs. per sq. ft. and upwards	10/15/0	0/0/0
Pipe.....	11/5/0	0/0/0
ZINC—English sheet.....ton	19/0/0	19/0/0
Vieille Montagne	10/10/0	0/0/0
TIN—Straits.....	68/15/0	69/5/0
Australian	69 5/0	69/15/0
English Ingots..	70/0/0	70/10/0
Banca	68/0/0	68/10/0
Billiton	67/0/0	67/10/0

OILS.

Linseed ..... ton	20/0/0	20/5/0
Cocoanut, Cochin	28/0/0	0/0/0
Do. Ceylon	23 0/0	0/0/0
Palm, Lagos.....	23 0/0	0/0/0
Rapeseed, English pale	21/5 0	21/15/0
Do. brown	19/15/0	22/0/0
Cottonseed ref....	20/10/0	21/5/0
Oleine	22/0/0	24/0/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	5/0/0	12/0/0
TAR—Stockholm barrel	0/22/0	0/0/0
Archangel.....	0/21/0	0/0/0

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
School Buildings, Bridge-street	Morley (Yorks) Sch. B.	.....	Oct. 1
*Improvement of Navigation of River Parrett, &c.	Bridgwater Town Council	105*l.* and 26*l.* 5*s.*	Oct. 31
Municipal Buildings	King's Lynn Corp.	21*l.* 10*l.* 10*s.*	Nov. 1
*New County Offices	Durham C. C.	200*l.* and 100*l.*	Nov. 30
*Museum for Antiquities, Cairo	Egyptian Government	First 600*l.* and 400*l.* between the next four	Mar. 1, '95
*Alterations, &c. to Public Offices	Coventry Corp.	150*l.* 50*l.* and 50*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered
School Buildings, Leavesden-road	Watford School Board	C. P. Ayres	Aug. 21
Cottage Hospital, Bridgend, Glam.	.....	Lambert & Rees	do.
Additions, &c. to Schools, Knightley, near Eccleshall	James Bourne	.....	do.
Road Works, co. Donegal	Congested Districts Board (Ireland)	*Official*	do.
Road, Footpaths, &c. Fratton and Milton	Portsmouth U.S.A.	do.	Aug. 22
Reading Room, &c. Chilton Foliat, Wilts	Lady Pearce	Jas. H. Money	do.
Rebuilding Wheatsheaf Inn, Market-street, Halifax	.....	Jackson & Fox	do.
Thirty-seven Houses, Tonypandy, South Wales	Blaenclydach Building Club	R. S. Griffiths	do.
Granite Macadam (1,500 tons)	Woodford Local Board	C. Mathew	Aug. 24
Well Sinking	Worksop Waterwks Co.	Jno. Allsopp	Aug. 25
Additions, &c. to Eye Cottage, Luston, Hereford	.....	W. W. Robinson	do.
Two Shops and House, Illingworth, Yorks	.....	Medley Hall	do.
Farmhouse, Scrog House, Sedburgh, near Kendal	Jas. Dover & Sons	Stephen Shaw	do.
*Conversion of Pathhead Hall into Library	Kirkcaldy Town Coun.	J. Gillespie	do.
Road Works, East Bank-road	St. Anne's - on - Sea (Lancs.) Local Board	*Official*	do.
Chapel, Cottage, &c.	Hellingby (Sussex) Burial Board	do.	Aug. 27
School Buildings, Tower-road, St. Leonard's-on-Sea	Hastings School Board	Jeffery & Skiller	do.
Retaining Wall, near Modbury Inn, Plymouth	.....	Jas. Paton	do.
Weir, Darcy Lever	Bolton Corporation	W. H. Brockbank	Aug. 23
Street Works, Sheriff and other Streets	West Hartlepool Corp.	J. W. Brown	do.
Additions, &c. to Schools	Blagdon (Somerset) & Charterhouse Sch. Bd.	F. W. Wills	do.
Sewering, &c. Mason and other Streets	Horwich Local Board	J. E. Jackson	do.
Draining, Kerbing, Flagging, &c.	do.	do.	do.
Schools, &c. Brockweir, Hewelsfield, Glos.	St. Briavels & Hewelsfield School Board	*Official*	do.
Warehouse and Water-tower, Foss Island, York	H. Leetham & Son	W. G. Penty	Aug. 29
Sewerage Works	Ludlow (Salop) R.S.A.	W. Wyatt	do.
Granite Road Metal (400 tons)	Shirley & Freemantle (Hants) Local Board	E. J. Batten	Aug. 30
Pipe Sewers, Tanks, &c.	Southwold Town Coun.	F. Beesley	do.
Alterations, &c. to Schools, near Barnsley	Warsborough Sch. Bd.	Senior & Clegg	do.
Reservoir, Dunoon, N.B.	Argyll County Council	Leslie & Reid	do.
Church, Preston New-road, Blackburn	.....	Wright & Son	Aug. 31
*Golf Pavilion	Bournemouth T. C.	F. W. Lacey	do.
*Alteration to Schools and Erection of Infants' School	Burton-on-Trent U.D. School Board	B. Churchill	do.
*Broken Granite	Sevenoaks Local Board	Jabez Mann	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Twelve Houses, Crumlin, near Newport, Mon.	.....	W. L. Griffiths	Sept. 1
Water Supply Works, Sandbach	Congleton R. S. A.	W. Wyatt	do.
Granite Road Metal	Diss (Norfolk) Loc. Bd.	J. Alger	do.
Jetty and Landing Place, Knot End, near Fleetwood, Lancs.	Improvement Commrs.	M. S. Gaulter	do.
*Broken Granite and Gravel	Romford Local Bd.	*Official*	do.
*Sewerage Works	St. Pancras Vestry	W. N. Blair	Sept.
Lifeboat House, &c. Mevagissey, Cornwall	Royal National Lifeboat Inst.	W. T. Douglas	do.
Steel Girder Bridge (Tonge Bridge)	Lancs. County Council and Bolton T. C.	*Official*	do.
Gravel Road Metal (1,070 yards)	Watford Highway Bd.	do.	do.
Iron or Steel Footbridge	Durham Corporation	do.	do.
*Outfall Sewerage Works	Marple Local Board	H. Bancroft	do.
*Iron and Stoneware Pipe Sewers, &c.	do.	do.	do.
*Infant School	Farnham Sch. Bd.	J. A. Eggar	Sept.
Street Works, Stanley-avenue, &c.	Eccles (Lancs.) Corp.	A. C. Turley	Sept.
Sewers, Canal Bank, Monton	Eccles Corp.	do.	do.
Waterworks	Lisbury (Ireland) Town Commissioners	Jno. Lanyon	Sept.
*Engineering Work at Hospital, Fulham	Met. Asylums Board	A. & C. Harston	do.
*Making-up and Paving Road	Walthamstow Loc. Bd.	G. W. Holmes	Sept.
*Oak Park Fencing	do.	do.	do.
*Additions to Hospital	Bournemouth T. C.	F. W. Lacey	Sept.
*Filling up Basin of Market, Deptford	Cattle Market Com.	*Official*	Sept.
*Sewerage Works	Smethwick Local Bd.	Harris & Harris	Sept.
*Main Sewerage Works	Cambridge Corp.	J. T. Wood	do.
*Superstructure of Post Office, Liverpool	Com. of H. M. Works	*Official*	Sept.
*Erection of Boys' School	Watford Sch. Bd.	C. P. Ayres	No date
Villa Residence, Ballywilliam, Donaghadee, Ireland	A. Monk	Thos. Pentland	do.
Additions to St. Mary's Cathedral, Broughton-street, Edinburgh	.....	Buchanan & Bennett	do.
Eight Cottages, Pye Bridge Station, Leicester	.....	Chas. Kempson	do.
Parish Hall, Brighton-grove, Newcastle-on-Tyne	.....	Crawford - Hick & Wilkinson	do.
Four Houses, Brook-street, Carlisle	.....	G. Dale Oliver	do.
Business Premises, Blaenavon, Mon.	Mrs. R. Fowler	E. A. Johnson	do.
Villa, Railway-terrace, Penrhiwceiber, Wales	E. T. Richards	.....	do.
Seven Houses and Shop, Spring Bank, Nelson, Lancs.	Jas. Townsend	.....	do.
Extensions to Theatre Royal, Leeds	Walter Reynolds	.....	do.
Alterations to Business Premises, Macclesfield	G. J. Moulton & Co. Ld.	.....	do.
*Seven Houses, Shaw-road, Burnley	D. Sutcliffe	.....	do.
*Pulling Down, &c. Shops, Old Kent-road	.....	.....	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Sculpture and Modelling Instructor	Liverpool School of Architecture	250*l.* &c.	Sept.
*Decorative and Figure Painting Instructor	do.	150*l.* &c.	do.
*Surveyor	Richmond (Surrey) Town Council	350*l.* &c.	Sept.
*Draughtsman (Admiralty Outposts)	Civil Service Com.	Not stated	Sept.
*Art Master	Northampton Art Sch.	180*l.*	No date

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* vi., vii., *and* viii. *Public Appointments, pp.* xviii. *and* xx.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursday.*]

BILLINGBOROUGH (Lincs.).—For additions, &c., to school buildings, for the School Board. Mr. Herbert Kirk, architect, Sleaford:—

Hotter & Glenn	£490 9 10	Roberts	£430 0 0
Hockley & Son	456 16 0	Halliday	397 10 0
Blood	456 8 6	Wadsley & Son, Horbling*	368 12 8
Sherwin	439 0 0		

* Accepted.

BILSTON (Staffs.).—Accepted for the erection of two semi-detached houses, Dover-street, for Messrs. Greenfield & Colley. Mr. J. Mason, architect, Victoria Chambers, Bilston-street, Wolverhampton:—

Charles E. Burton, Heath Tower, Wolverhampton £922

BISHOP'S WALTHAM (Hants).—For additions, &c., to school buildings, &c., for the School Board. Mr. William Gilbert, architect, Bishop's Waltham:—

Hale Bros.	£950 0 0	Rapley & Son, Forton, Gosport*	£698 12 6
George Apps	795 0 0		
George Weeks	760 0 0		

* Accepted.

BROMYARD.—For the erection of an isolation hospital, outbuildings, &c., Burley, for the Union Rural Sanitary Authority, Mr. A. Hill Parker, architect, 5, Foregate-street, Worcester. Quantities by architect:—

W. Welch	£1,298 0 0	H. Stokes	£1,147 0 0
W. Bowers & Co.	1,242 15 0	J. Everal	1,140 0 0
A. C. & G. Lewis	1,205 0 0	W. James, Bromyard (accepted)	946 11 4
A. Newbold	1,154 1 0		

CELBRIDGE (Ireland).—For the erection of four cottages for the Union Guardians. Mr. Leslie Connor, architect, Athy:—

William Fennell £585
Augustine Kelly, Celbridge (accepted) 550

DARTFORD.—Accepted for iron fencing to the Airing Grounds of the Gore Farm Hospital, Dartford, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street:—

Bayliss, Jones, & Bayliss, Cannon-street £808 11 6

DONCASTER.—For the erection of dwelling-houses, South Elmsall, for Mr. Thomas Brooks. Mr. Denton Brooks, architect, 37, Brunswick-avenue, Hull:—

William Watson, South Elmsall £755

EAST COMPTON) Dorset).—Accepted for building a new coach-house, and alterations to stables, for Colonel R. Williams. Mr. A. L. T. Tilley, architect, 16, Cornhill, Dorchester:—

C. E. Slade, Dorchester £477 13

EGHAM.—For the erection of the Egham Parish Schools. Mr. J. W. Oades, architect, Egham:—

Gray	£115 15 0	Sleep	£100 7 9
Searle & Sons	110 10 0	Beauchamp & Rowland	82 16 0
Simpson	103 5 8		

EWELL.—For painting, repairs, and water supply to the "Spring Hotel," Ewell, Surrey, for Messrs Nalder & Collyer's Brewery Company, Limited. Mr. Robt. M. Chart, architect and surveyor, Union Bank Chambers, Croydon:—

E. Goulder ..... £112 15 | J. Hole, Sutton (accepted) £92 0

FAY GATE (Sussex.—For alterations and additions to Beaumont, Fay Gate, Sussex, for Mr. J. Moore. Mr. T. Potter, architect, 49, London-road, Sevenoaks. Quantities by the architect:—

	Time.		Time.
Wiltshire & Son	£3,374..6 mths.	P. Peters, Horsham*	£2,873..4 mths.
Rowland Bros.	3,100..6 ,,	T. Ockenden & Son	2,871..9 ,,
J. Longley & Co.	2,897..4 ,,		

[Architect's estimate, £2,888.]

* Accepted.

GATESHEAD.—For additions, &c., to refreshment-room at the Town-hall, for the Corporation. Mr. J. Bower, C.E., Borough Engineer, Town-hall, Gateshead:—

R. McKew	£811 1 6	T. & R. Lamb, Grahamsley-street, Gateshead*	£704 8 9
Joseph Elliot	740 0 0		

* Accepted.

GUILDFORD.—For draining, levelling, &c., Upper Edgeborough and four other roads (six contracts), for the Corporation. Mr. F. T. Maltby, C.E., Borough Surveyor, Tunsgate, Guildford:—

S. Kavanagh, Surbiton, Surrey.

Contract No. 1.—Baillie-road*	£215	15 0
,, 2.—Stable-road*	178	14 6
,, 3.—Clandon-road*	352	16 0
,, 4.—Lower Edgeborough-road	181	16 1
,, 5.—Upper Edgeborough-road	395	11 0

F. A. Franks, Guildford.

Contract No. 1.—	£212	15 0
,, 2.—	163	0 0
,, 3.—	388	0 0
,, 4.— *	199	15 0
,, 5.— *	494	16 0

* Accepted.

HECKMONDWIKE.—For forming, draining, paving, &c. Church-lane, for the Local Board. Mr. James Saville, Surveyor, Heckmondwike. Quantities by Surveyor:—

John Slinger	£833 10	S. & W. Jowett	£691 12
J. E. Kaye	749 0	W. & H. Oldroyd, Heckmondwike (accepted)	670 10
R. Naylor & Sons	748 0	Richard Parker	669 4
George Horsfall	717 0	Matthew Hall	631 19

HORLEY (Surrey).—For repairs at the "Prince Albert" Inn, Horley, Surrey, for Messrs. Nalder & Collyer's Brewery Company, Limited. Mr. Robert M. Chart, architect, Union Bank-chambers, Croydon:—

Laker	£112 10 0	A. Crouch, Worthing*	£87 7
Wilkinson	107 0 0		

* Accepted.

IPSWICH.—Accepted for alterations and decorative works at West Tower, for Mr. A. Wainwright. Mr. John S. Corder, architect:—

Crisp & Smith £329 10

LEICESTER.—For new temperance hotel and shops, Leicester. Mr. Arthur Wakerley, architect and surveyor, 46, London-road, Leicester:—

Hardington & Elliot	£11,450 0	Clark & Garrett	£10,420
T. & H. Herbert	10,890 0	J. Jewsbury	10,329
Hutchinson & Sons	10,777 10	Duxbury & Sons	10,030
Mayor & Sons	10,755 7	Riddett & Sons	9,733
Hinson Bros.	10,544 0	E. Fox, Leicester*	9,699
O. Wright	10,509 0		

*Accepted subject to Examination Schedule.

LEYTONSTONE.—For the first portion of new roads and sewers on the Walwood Park Estate. Mr. William Barnard Pinhey, architect and surveyor, 8, King William-street, Strand, W.C.:—

John Neave	£4,780	E. Wilson	£3,5
John Jackson & Sons	4,400	Fry Bros	3,4
T. Adams	3,969	John Reeves	3,0
W. Griffiths	3,517	Jesse Jackson, Leyton*	2,9

* Accepted.

LONDON.—Accepted for paving and roadwork at Craigallan Gardens and Grove Park, Camberwell, for the Vestry of Camberwell. Mr. O. T. Brown, surveyor:—

Mayo & Co., Peckford-place Works, Brixton-road £1,89

LONDON.—For new sanitary fittings and other alterations to the George-yard Schools, Whitechapel, for the Trustees. Messrs. Wigg, Oliver, & Hudson, architects, 80, Leman-street, E., and 7, Bedford-row, W.C. Quantities by Mr. F. G. W. Buss:—

Thomas Little	£949	J. Outhwaite & Son	£6
A. Eaton & Co.	775	W. Gladding, Whitechapel*	6
J. & H. Cocks	710		

* Accepted.

LONDON.—For the erection of Mission Church and Parish Room, for the Vicar and Churchwardens of St. Luke's, Victoria Docks, Canning Town, E. Messrs. Wigg, Oliver, & Hudson, architects, 7, Bedford-row, W.C., and 80, Lemon-street, E. Quantities by Mr. F. G. W. Buss :—

Sparkes & Son	£1,985	J. Noakes	£1,752
W. J. Maddison	1,919	James Webb	1,675
Walter Gladding	1,766	J. G. Horlock	1,589

LONDON.—For alterations and sundry work at 63, Harley-street, for Mr. G. Gregson. Mr. A. E. Hughes, architect, 28, Mortimer-street :—

Faulkner	£1,037	Ward & Lamble	£797
Adamson	921	Williams & Son	747

LONDON.—For building stable at 28, Welbeck-street, for Mr. W. H. Thomas. Mr. A. E. Hughes, architect, 28, Mortimer-street :—

Manley	£962	Ward & Lamble	£733
Williams & Son	793	Walton	695

LONDON.—For the erection of the Northern Polytechnic Institute, Islington. Mr. Charles Bell, architect. Quantities by Mr. C. G. Roberts :

	SECT. 1.	SECT. 2.	SECT. 3.	TOTAL.
Woodward & Co.	£9,399	£18,405	£6,808	£34,612
Dove Bros.	8,885	17,845	6,425	33,155
W. & H. Castle	8,580	17,537	6,240	32,357
Lown & Sons	8,512	17,406	6,264	32,182
C. Dearing & Son	8,320	17,000	6,050	31,370
Chas. Wall	8,300	17,000	5,900	31,200
Mattock Bros.	8,177	16,921	6,033	31,131
Lawrance & Sons	8,193	16,710	5,977	30,880
G. S. Williams & Son	7,800	16,743	6,100	30,643
J. Grover & Sons	8,039	16,379	5,784	30,202
J. Howell Williams	8,127	16,180	5,980	30,287
Wm. Goodman	8,000	16,410	5,823	30,233
Macfarlane Bros.*	7,593	16,191	5,938	29,722

*Accepted.

LONDON.—For alterations at No. 3, Sussex-place, South Kensington, for Mr. F. Cowlin. Mr. R. M. Chart, architect, Croydon :—

Scharien & Co.	£927
E. Toms, Camden Town (accepted)	769

LONDON.—For alterations and additions at 568 and 568A, Mile End-road, for Mr. Walklate. Mr. Charles Legg, architect :—

Contract, No. 1.

Drew & Cadman	£2,240	P. Kerridge	£2,050

Contract, No. 2.

W. D. Brown	£1,396	Calnan & Co.	£1,198
Drew & Cadman	1,296	Ostle Bros.	1,073
P. Kerridge	1,252	Hawkins	1,045

LONDON.—For cottage hospital, Wood Green, N., Mr. Charles Bell, architect.

Voller	£2,245	Say	£1,840
Mattock Bros.	1,979	C Wall (accepted)	1,800

LONDON.—For the supply of 500 tons Guernsey granite spalls, for the Guardians of the Fulham Union :—

	Per ton. s. d.		Per ton. s. d.
Wimpey & Co.	10 11	John Mowlem & Co.	9 4
R. L. & J. Fennings	9 10	Nowell & Robson, Warwick-road, Kensington *	8 10
A. & F. Manuelle	9 10		
G. Le Maitre	9 4		

*Accepted.

LONDON.—For additions, &c., to workhouse, Fulham Palace-road, for the Fulham Union Guardians. Mr. A. Saxon Snell, architect, 22, Southampton-buildings, Chancery-lane, London, W.C. Quantities by architect :—

F. Dupont	£7,259	H. Lovatt	£5,306
Foster & Dicksee	5,878	B. E. Nightingale, Albert Embankment*	5,095
J. H. Newman	5,690		
H. Wall & Co.	5,497		

*Accepted.

LONDON.—For the construction of a 24-in. pipe sewer, Constance-road, East Dulwich, for the Camberwell Vestry. Mr. O. S. Brown, Surveyor, Works Department, Vestry Hall, Peckham-road, London, S.E. Quantities by the Surveyor :—

Cooke & Co.	£696 4 6	Killingback & Co.	£540 17 [illegible]
T. Adams	555 14 6	H. Cox, Camberwell*	429 18 6
J. Jackson	541 11 0		

*Accepted.

LONDON.—For fitting up hot-water supply and warming apparatus to three new blocks at the Eastern Hospital, the Grove, Homerton, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street :—

C. Kite & Co.	£1,400	Benham & Son	£1,080
J. Fraser & Sons	1,243	Vaughan & Brown	1,050
Stode & Co.	1,133	Murdock & Cameron	995
J. & F. May	1,125	J. C. & J. S. Ellis	995
Potter & Sons	1,113	Clarke & Sons, 49, Moorgate-street*	970
J. & C. Christie	1,111		
Segg & Co.	1,081		

*Accepted.

LONDON.—For erecting a boundary fence wall at the North-Eastern Hospital, St. Ann's-road, Tottenham, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects, 15, Leadenhall-street :—

A. T. Hawkins	£249 10 0	W. Johnson & Co.	£148 0 0
Coates	235 12 6	Williamson & Sons	144 0 0
H. Wall & Co.	183 0 0	Willmott & Sons, Hornsley*	122 0 0
Yates & Co.	150 9 0		
Hunt	148 7 6		

*Accepted.

LONDON.—For alterations and additions to the "Director General" public-house, Wellington-street, Woolwich, for Mr. G. H. Church. Mr. H. H. Church, architect, William-street, Woolwich. Quantities by Mr. W. Whincop, 15, Kyverdale-road, Stoke Newington, N.W. :—

J. Chapman	£1,565	Procter	£1,300
Young & Lonsdale	1,480	C. Ansell	1,287
H. L. Holloway	1,442	Balaam Bros.	1,260
Multon & Wallis	1,349		

LONDON.—For new buildings, Frazier-street, Lambeth, for Mr. John Paterson. Mr. J. W. Young, architect, 8, Bolton-road, St. John's Wood, N.W. :—

Young & Lonsdale	£2,256	Appleby	£1,709

LONDON.—For interior painting of Monnow-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect :—

Williams	£495 0	H. Leney	£401
Holiday & Greenwood	465 0	Marchant & Hirst	399
G. Summers	431 5		

LONDON.—For interior painting of Teesdale-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect :—

Bolton	£290 0 0	G. Barker	£162 0 0
Marchant & Hurst	225 0 0	F. White & Son	130 1 11
Knight & Son	219 10 0	Stevens Bros.	128 0 0
Browning & Co	188 0 0		

LONDON.—For interior painting of Rolls-road Board School, for the School Board for London. Mr. T. J. Bailey, Architect :—

H. J. Williams	£378 0 0	Holliday & Greenwood	£257 0 0
G. Summers	312 5 6	Marchant & Hirst	240 0 0

LONDON.—For interior painting, &c., at the Hunter-street Board School, for the School Board for London. Mr. T. J. Bailey, Architect :—

Frampton	£275	H. J. Williams	£195
Holliday & Greenwood	227	Luke & Hooker	180
Marchant & Hirst	198	H. Leney	141

LONDON.—For interior painting, &c., at the Goodson-road schools, for the School Board for London. Mr. T. J. Bailey, Architect :—

H. Leney	£650 2 2	W. H. Castle	£335 0 0
Williams	382 0 0	Holliday & Greenwood	289 0 0
G. Summers	373 5 0	Marchant & Hirst	249 0 0
Newton	357 17 6		

LONDON.—For interior alterations, painting, &c., at 111, Highgate-road. Mr. W. J. Miller, architect, 182, Oxford-street, W. :—

J. Phelps	£176	A. A. Webber	£152
Marchant & Hirst	154		

LONDON.—For block of artisans' dwellings and shop, at King's Cross-road, N., for Mr. J. G. Wall, Mr. H. H. Tasker, architect :—

Turner	£2,697	J. Hunt	£2,099
Lidstone & Son	2,247	Dearing & Son	2,068
Lawrance & Son	2,154	W. Shurmur	1,990

LONDON.—For offices for Mr. E. H. Cornwall, at Walham-green. Messrs. Bourchier & Galsworthy, architects, Quantities by Mr. Alex. Pope :—

C. Wall	£1,685	J. O. Richardson	£1,619
Snewin Bros.	1,666	Leslie & Co.	1,527
M. Messin	1,629	J. Anley	1,512
Gregar & Co.	1,625	T. Nye	1,480
W. Shurmur	1,620	J. Dore & Co.	1,380

LONDON.—For new premises for the London and Provincial Bank, Limited, at Walham Green, Messrs. Bourchier & Galsworthy, architects. Quantities by Mr. Alex. Pope :—

C. Wall	£6,300	W. Shurmur	£5,499
Snewin Bros.	5,778	Gregar & Co.	5,455
Leslie & Co.	5,646	J. Anley	5,360
M. Messin	5,599	T. Nye	5,280
J. O. Richardson	5,542	J. Dore & Co.	4,760

LONDON.—For erecting two shops &c., at Walham Green, for Mr. G. E. Abery. Messrs. Bourchier & Galsworthy, architects. Quantities by Mr. Alex. Pope :—

C. Wall	£3,140	M. Messin	£2,813
Gregar & Co.	2,915	J. O. Richardson	2,758
Leslie & Co.	2,893	J. Anley	2,650
Snewin Bros.	2,884	T. Nye	2,650
W. Shurmur	2,826	J. Dore & Co.	2,390

LONDON.—For proposed alterations and decorations at No. 32, Eaton-place. Mr. basil Slade, architect :—

T. Stevens	£1,094	Wetherilt, Lee, & Martin	£934
Aldin, Son, & Davis	956	J. T. Messom	849

LONDON.—For decorations, &c., at Nos. 87, 88, and 89, St. James'-street, No. 1, Cleveland-row, and No. 2, Russell-court. Mr. Herbert G. Ibberson, architect, 5, Adelaide-place, E.C. :—

Birch	£228 0 0	Wetherilt, Lee, & Martin*	£160 15 0
Whiteley	179 12 6		
Hampton & Sons	172 0 0		

*Accepted.

LONDON.—For kerbing, channelling, &c., Glenwood-road, Catford, for the Lewisham Board of Works. Mr. John Carline, Surveyor, Board of Works' Offices, Catford, London, S.E. :—

Fry Bros., Greenwich	£678

LONDON.—For kerbing, tar-paving, footpaths, channelling, &c., Rosenthal-rd., Catford, for the Lewisham Board of Works. Mr. John Carline, Surveyor, Board of Works' Offices, Catford, London, S.E. :—

Fry Bros., Greenwich	£664

LONDON.—For kerbing, paying, metalling, &c., Devonshire-road, Forest Hill, for the Lewisham Board of Works. Mr. John Carline, Surveyor, Board of Works Office, Catford :—

Mayo & Co., Brixton	£925

LONDON.—For an underground convenience in Parkhurst-road, by Holloway-road, N., for the Vestry of St. Mary, Islington, N. Mr. J. Patten Barber, Chief Surveyor :—

Doulton & Co.	£3,139
George Jennings, Lambeth Palace-road, S.E.*	2,400

*Accepted.

LONDON.—For paving the carriageway of St. Paul's-road with wood, for the Vestry of Saint Mary, Islington. Mr. J. Patten Barber, Chief Surveyor :—

McCormack & Son	£3,477 4 2	Jno. Mowlem & Co.	£2,755 12 1
E. Parry	3,121 0 10	The Improved Wood Pavement Co., 46, Queen Victoria-st., E.C.*	2,512 18 4
W. Wadey	3,006 2 11		
W. Wadey	2,880 2 11		
W. Griffiths	2,862 0 0		

*Accepted.

LONDON.—For an underground convenience in High-street, Islington, N., for the Vestry of St. Mary, Islington. Mr. J. Patten Barber, Chief Surveyor :—

George Jennings	£1,550	Doulton & Co., Albert Embankment, S.E.*	£1,433
B. Finch & Co.	1,480		

*Accepted.

LONDON.—Accepted for pulling down and rebuilding No. 93, Dean-street, Soho, for Mr. Jacob Sander :—

Webster & Son	£840

LONDON.—Accepted for pulling down and rebuilding No. 9, Crown-court, Oxford-street, for Mr. jacob Sander :—

Webster & Son	£402 10

LONDON.—For new floor and roofing, and sundry alterations at "Chippenham" Hotel, Shirland-road, W., for Mr. W. Mills. Quantities by Messrs. Bird & Walters, Seymour-place, W. :—

Webster & Son	£382 10	Marks	£380
Burman & Son	381 0		

LONDON.—Accepted for erecting a new hotel, Hans-place, Chelsea, London. Messrs. Read & Macdonald, architects, Oxford-street, W. Quantities by Mr. W. H. Elsmore, Barnes, London :—

Stephens, Bastow, & Co., Ltd., Bristol	£28,250

LONDON.—For building new infants' water-closets and urinals, and interior decorations, at St. Saviour's Schools, Paddington. Mr. F. G. Coward, architect, 32, Gt. James-street, W.C. :—

A. Henry	£161 0	D. C. Martin & Son*	£160 17

*Accepted.

LOUGHBOROUGH (Leics.).—For the construction of sewage disposal works (Contracts 5 and 6) for the Town Council. Mr. Ambrose W. Cross, C.E., Borough Engineer, Municipal Buildings, Ashby-road, Loughborough. Quantities by the Engineer :—

G. Lawson	£2,484 11 0	Wm. Moss & Son, Loughborough*	£1,550 2 6
T. Philbrick	1,845 16 0		
James Mason	1,763 9 6		
George Bell	1,575 0 0		

*Accepted.

[Engineer's estimate £1,574 14 0]

MICHAELSTON-Y-VEDW (Monmouthshire).—For the restoration of Michaelston-y-Vedw Church. Messrs. Seddon & Carter, architects, Bank Buildings, St. Mary-street, Cardiff :—

Haines	£1,335 0	Jenkins	£1,235 0
Hatherley & Carr	1,285 0	Tursey, Castleton*	1,153 5
Shepton	1,251 0	Cooksley	1,125 0
Belham & Co.	1,248 18		

*Accepted.

MITCHAM.—For repairs and painting at the Vestry Hall, Mitcham. Mr. R. M. Chart, architect, Mitcham :—

C. Sayers	£200	T. G. Howard	£123
H. W. Hayden	124	M. A. Lawrence, Mitcham*	118

*Accepted.

MITCHAM.—For new farm building at Swaine's Farm, Mitcham, for the Executors of the late Mrs. Harland. Mr. R. M. Chart, architect, Mitcham, Surrey :—

Burgess	£149 10	Burnand, Wallington*	£144

*Accepted.

NEWQUAY (Cornwall).—For building two houses at Newquay. Mr. Wilham J. Jenkins, architect, Bodmin :—

J. Jullian	£2,110	Farley & Co., Truro*	£1,699
Tippett	1,920		
Isbell	1,836		

*Accepted.

[Architect's Estimate £1,800.

NORTH MOLTON (Devon).—For cloak-rooms, additions, &c., to school buildings, for the School Board. Mr. F. W. Wreford, architect, North Molton :—

S. Western	£257
W. H. Bawden, Bishopsnympton (accepted)	247

OXFORD.—For additions to school buildings, New Hinksey, for the Rev. W. D. B. Curry :—

William Rose	£360 0	W. H. Sidrey	£287 0
C. C. Robinson	310 10	T. Astell, Oxford*	279 0
G. H. Wheeler	295 0		

*Accepted.

PONTYPRIDD.—For the erection of business premises and offices, High-street, for the Pontypridd Masonic Hall Company, Limited. Mr. T. R. Phillips, architect, Old Bank Chambers, Pontypridd :—

John Rees, Yuysybwl, near Pontypridd	£1,640

PORTH (Glam.).—For the construction of 500 yards pipe-sewer, manholes, &c., Trebanog, for the Ystradyfodwg Local board. Mr. W. J. Jones, Surveyor, Local Board Offices, Pentre, R.S.O. :—

David Evans & Sons	£241 2 0	Barnes & Chaplin, contractor's office, Treorky*	£200 0 0
John John	223 8 5		

*Accepted.

ST. ALBANS.—For additions to workhouse infirmary, for the Union Guardians. Mr. T. F. Woodman, surveyor, St. Peter's-street, St. Albans :—

Miskin & Co.	£2,885	J. & W. Savage	£2,590
Dunham & Co.	2,875	Sparrow & Co.*	2,595
Whibley & Jervis	2,650		

*Accepted.

ST. ALBANS.—For additions to warehouse, Victoria-street, St. Albans, for Mr. H. Slade :—

Miskin & Co.	£512	Whibbley & Jervis*	£420
J. & W. Savage	424		

*Accepted.

[All of St. Albans.]

SALISBURY.—For the erection of four cottages, Culver-street, for Mr. E. Grove. Messrs. John Harding & Son, architects, 51, Canal, Salisbury :—

Vincent & Folland	£688 0	C. Stevens	£634 0
Kellow & Smith	657 10	W. Koles (accepted)	620 0
Mort & Way	650 0	P. Tryhora	596 0

[All of Salisbury.]

SEVENOAKS.—For the erection of school buildings and master residence, for the School Board. Mr. Thomas Potter, architect, 49, London-road, Sevenoaks. Quantities by architect :—

W. Hodges	£2,576 10	R. Durtnell	£2,268 0
Horscroft & Mills	2,486 0	Wiltshire & Son, Sevenoaks*	2,149 0
Macandrews & Co.	2,437 0		
E. Bevan	2,301 0		

* Accepted subject to the approval of the Education Department.

SHILTON (Warwickshire).—For additions, alterations, painting, &c., Anstey Hall, Shilton, near Coventry, Warwickshire, for Colonel E. Woollcombe Adams. Mr. Basil Slade, architect, 3, Grosvenor-street, W. Messrs. Dunk & Bousfield, surveyors, Billiter-square Buildings, London, E.C. :—

C. J. Hill	£2,485 10	F. Messom	£2,323 0
Forster & Dicksee	2,400 0	Treasure & Son	2,322 0
Halliday	2,359 0	Parnell & Son	2,150 0

STOCKPORT.—For excavating, sewering, paving, &c., Mersey, and six other streets, for the Corporation. Mr. John Atkinson, C.E., Borough Surveyor, St. Peter's Gate, Stockport :—

Wm. Prescott	£3,873 18 3	Wm. Briscoe & Sons	£3,555 5 11
Joe Johnson	3,794 5 8	P. D. T. D. Hayes, Stockport*	3,511 19 1
Worthington & Pownall	3,708 15 6		

*Accepted.

STRATFORD.—For the erection of new stores and stabling, for Messrs. Ind, Cooper, & Co., Lim. Messrs. Wigg, Oliver, & Hudson, architect, 80, Leman-street, E., and 7, Bedford-row, W.C. :—

	To give possession in 31 days.	42 days.	56 days.
W. Gregar & Son	£1,537	£1,437	£1,377
W. Watson	—	1,262	1,158
Walter Gladding, Whitechapel*	1,187	1,187	1,187

*Accepted.

TREDEGAR (Mon.).—For additions, &c., to George Town School and Victoria School, Ebbw Vale, for the Bedwelty School Board. Mr. David Morgan, architect, Cardiff. Quantities by architect :—

George Town School.

Edward Morgan	£730 10	S. Arrowsmith	£712 0
Thomas Edwards	716 0	Rees Edwards (accepted)	710 0

Victoria School.

S. Arrowsmith	£805 0	Edward Morgan	£790 0
Thomas Edwards	800 0	Rees Edwards (accepted)	785 12

[All of Tredegar.]

TUNBRIDGE WELLS.—For new Central Electric Supply Station for the Town Council. Mr. Arthur Ardron, architect :—

Perkins & Co.	£3,490	P. Peters	£2,810
Simmonds Bros.	3,404	Longley & Co., Crawley*	2,789
R. Avard	3,053	Davis & Leaney†	2,786
Belham & Co.	2,995	† Too late.	

* Recommended by Committee for acceptance by the Council.

WALSALL.—Accepted for addition to the fire-station, Bridge-street, for the Corporation. Mr. R. H. Middleton, Borough Surveyor, Bridge-street, Walsall :—

Brockhurst & Wood, Walsall £125

WALTHAM CROSS.—For erecting house, &c., at Waltham Cross, for the trustees of the late B. B. Colvin. Messrs. Wigg, Oliver & Hudson, architects, 7, Bedford-row, W.C. :—

S. J. Scott	£1,846 0	J. Bentley	£1,694 0
W. Shurmur	1,757 0	C. White	1,657 0
L. & W. H. Patman	1,723 0	W. Gardner	1,598 10

WALTHAMSTOW.—For alterations at "Aveling's" Farm, for the Rev. J. G. Cazenove, D.D. Messrs. Wigg, Oliver, & Hudson, architects, 7, Bedford-row, W.C., and 80, Leman-street, E. :—

J. A. Reed	£235	E. Barltrop, Walthamstow *	£163
S. J. Scott	217	E. Good (withdrawn)	122
W. Gladding	214	* Accepted.	

WANSTEAD (Essex).—For the supply of 1,000 tons of Guernsey granite or Quenast stone, for the Local Board :—

	Per ton. s. d.	
Fennings & Co.	12 7	Guernsey.
G. Le Maitre	12 5	,,
A. F. Manuelle	12 4	,,
Mowlem & Co.	12 3	,,
Muir & Co.	12 3	,,
W. Griffiths	11 9	,,
C. M. Manuelle, London (accepted)	11 8	Quenast stone.

WEST HAM.—For the erection of stabling, Abbey-road, for the Corporation. Mr. Lewis Angell, Borough Engineer, Town Hall, Stratford, London, E. :—

G. Sharpe	£9,300 0 0	W. J. Maddison	£7,790 0 0
Coulsell Bros.	8,287 0 0	S. J. Scott	7,695 0 0
White & Son	8,266 3 6	Gregar & Son	7,437 0 0
Stimpson & Co.	8,100 0 0	Kirk & Randall	7,337 0 0
W. Watson	7,902 0 0	Scotney & Wootten	7,300 0 0
Hearle & Farrow	7,798 0 0	H. J. Carter, Grays*	6,826 0 0
	* Accepted.		

WILTON (Wilts).—For additions, &c., to Free School Buildings. Messrs. Jno. Harding & Son, architects, Canal, Salisbury :—

Ed. Hale	£490 0 0	R. Beckett	£390 0 0
Kellow & Smith	445 0 0	Brazier & Whatley, Wilton*	367 11 2
T. Elliott	425 0 0		
	* Accepted.		

WITHINGTON (Lancs.)—For the erection of a refuse-destructor and chimney for the Withington Local Board. Mr. A. H. Mountain, Engineer and Surveyor :—

	Chimney.	Cells, &c.	Total.
Evan Roberts & Son	1,803 11 3	2,761 16 2	4,565 7 5
Wm. Horsfall & Co.	—	—	4,368 14 6
Walter Musker	1,424 3 0	2,879 6 11	4,303 9 11
Goddard, Massey & Warner	1,476 10 5	2,598 11 7	4,085 2 0
J. E. Johnson & Son	1,582 0 5½	2,476 2 1	4,058 2 6½
James Byrom	1,268 4 5	2,252 4 10½	3,520 9 4
Mason & Company, Manchester*	1,231 7 10	2,228 9 6	3,509 17 4
	* Accepted.		

YSTRAD (Glamorganshire) —For additions to school-buildings, Gelli, for the Ystradyfodwg School Board. Mr. J. Rees, architect, Hill Side Cottage, Pentre, R.S.O. :—

Alban Richards, Pentre £1,650

TO CORRESPONDENTS.

R. and F.—J. C. (amounts should have been stated).—A Student (we do not insert letters unless authenticated by name and address of writer).—F. R. (we cannot undertake to answer your question).—"Thames" (we could only insert a requirement of that kind as an advertisement).—E. and A. M. (an engineer could advise on such a point after examining the ground, and not otherwise).—E. F. T. (too late: next week).

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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PUBLISHER'S NOTICES.

Registered Telegraphic Address, 'THE BUILDER,' LONDON.

THE INDEX and TITLE-PAGE for Volume LXVI. (Jan. to June, 1894) were given as a supplement with the number for July 14 last.

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Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" cannot be guaranteed for any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the front Page should be in by TWELVE noon on WEDNESDAY.

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The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent

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Asphalte.—The Seyssel and Metallic Lake Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co. [Adv.

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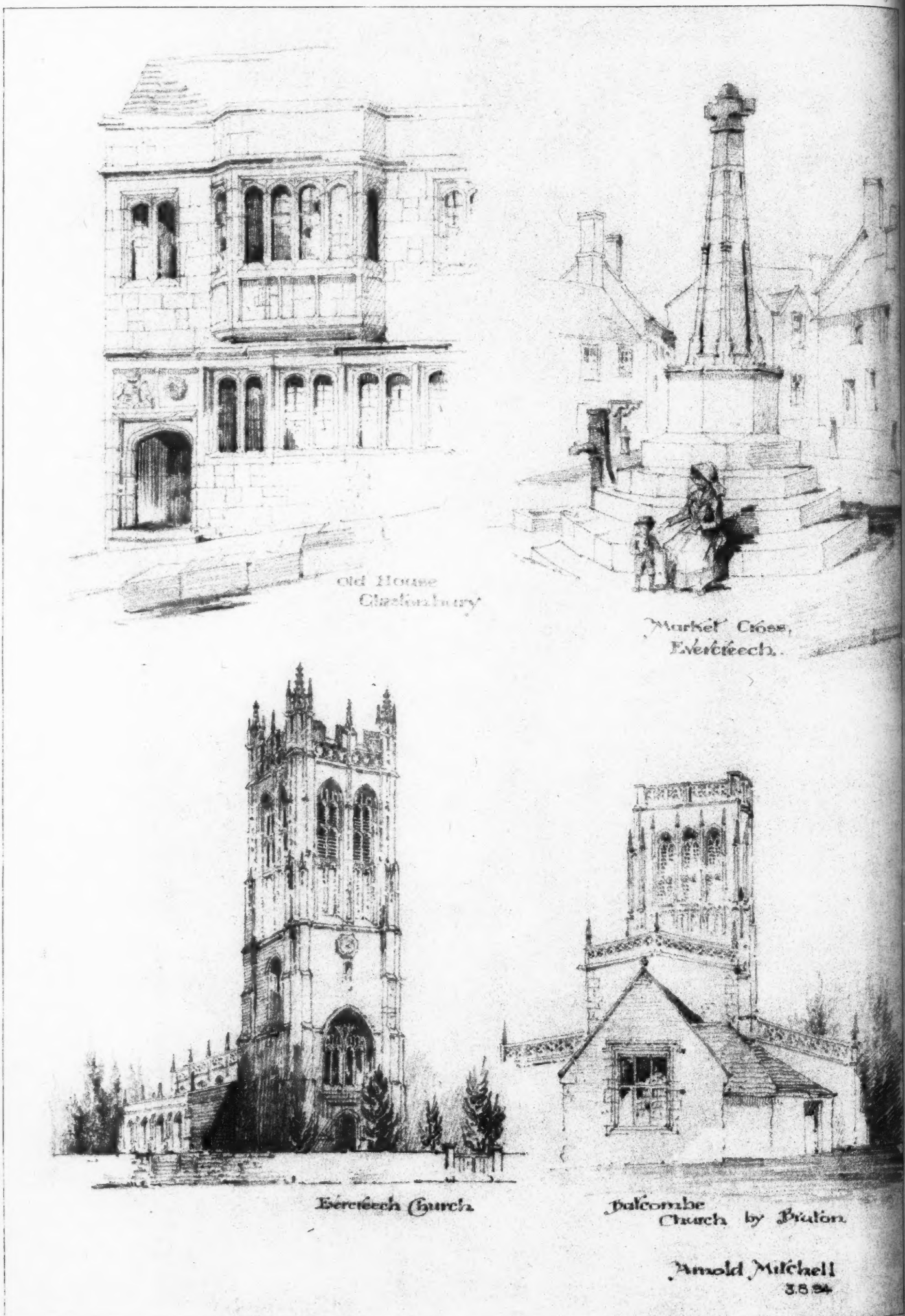

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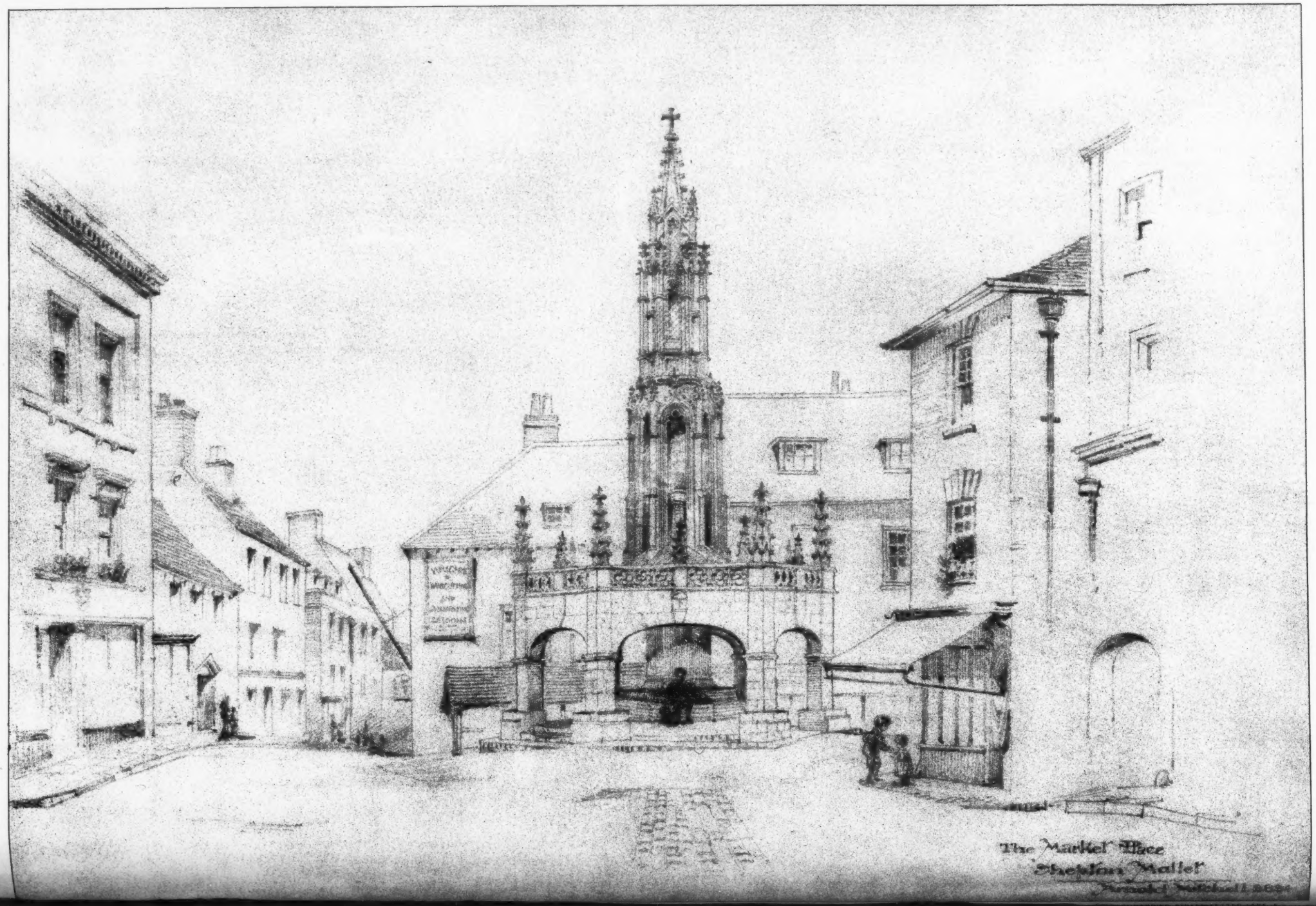
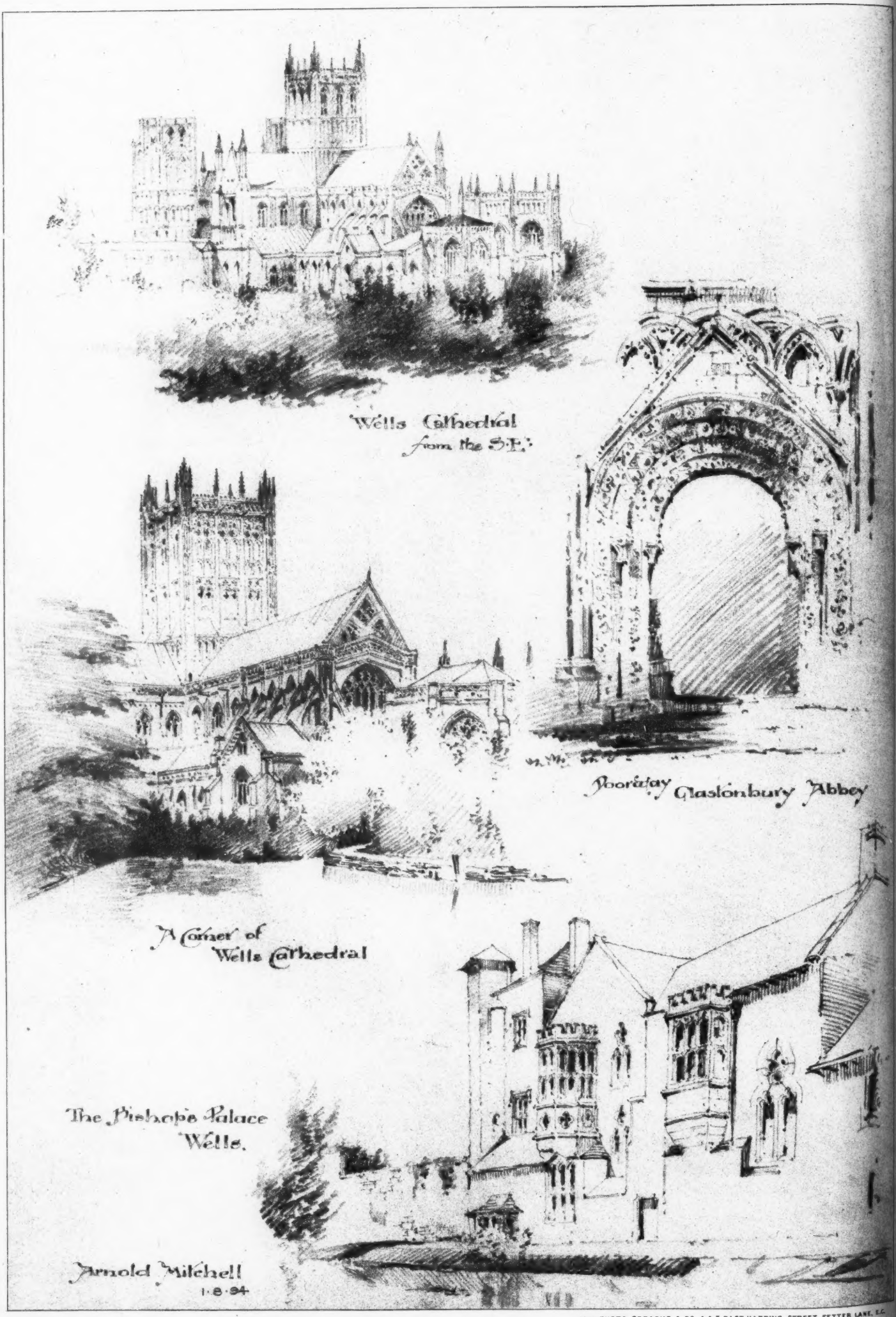


The Market Place
Shepton Mallet



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LONGLEAT HOUSE: ENTRANCE FRONT.

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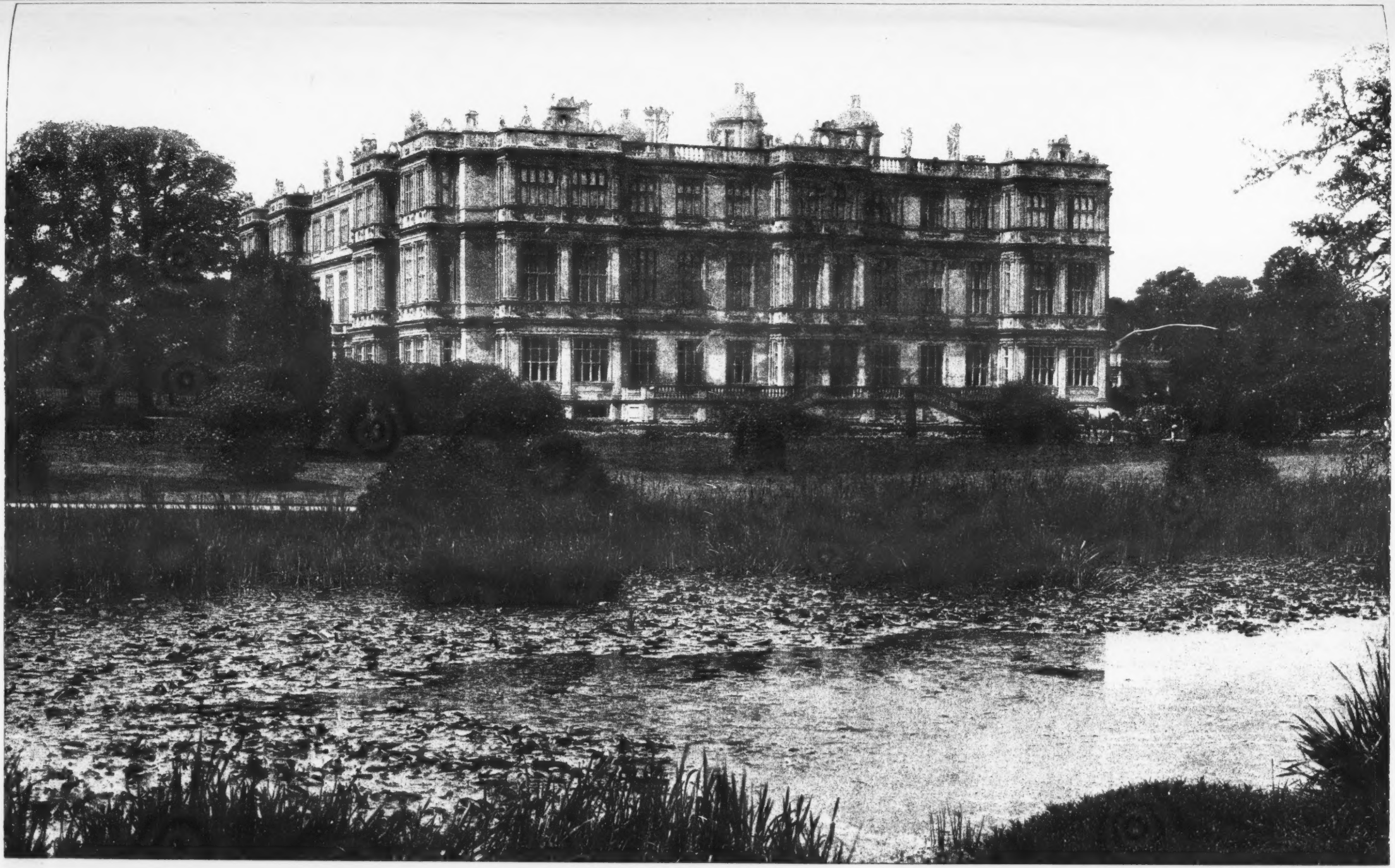
LONGLEAT HOUSE: ENTRANCE FRONT



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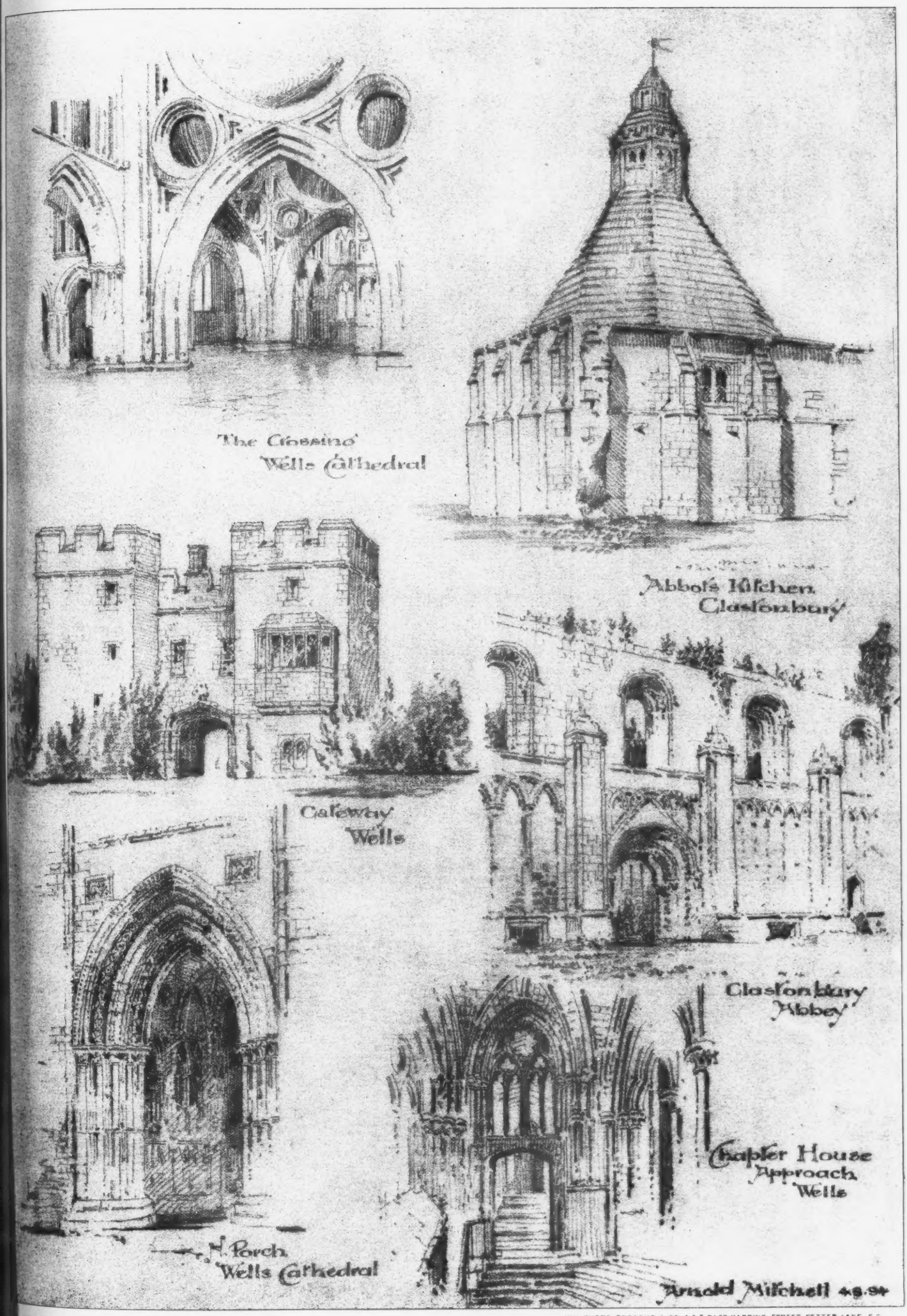
LONGLEAT HOUSE: END VIEW



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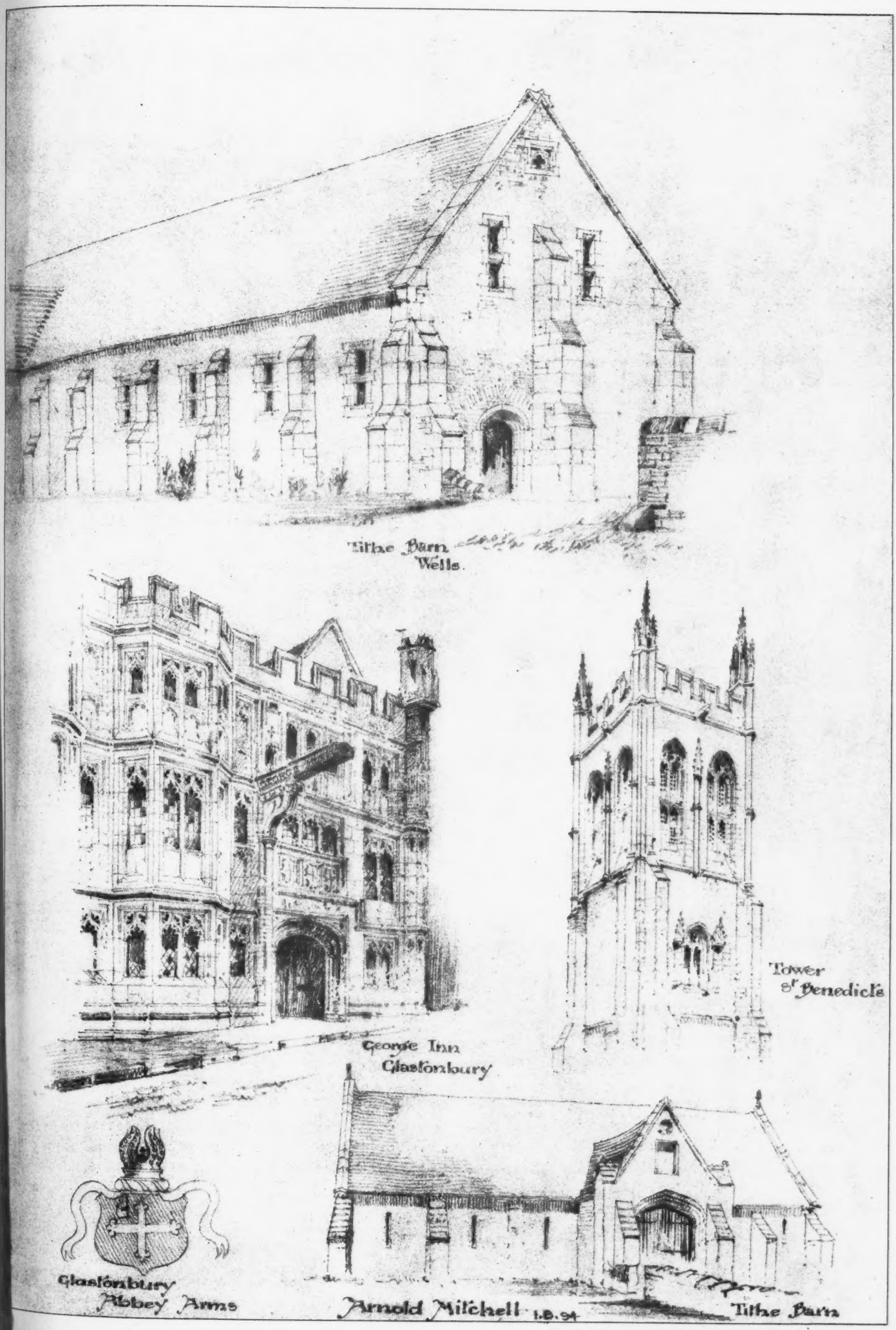

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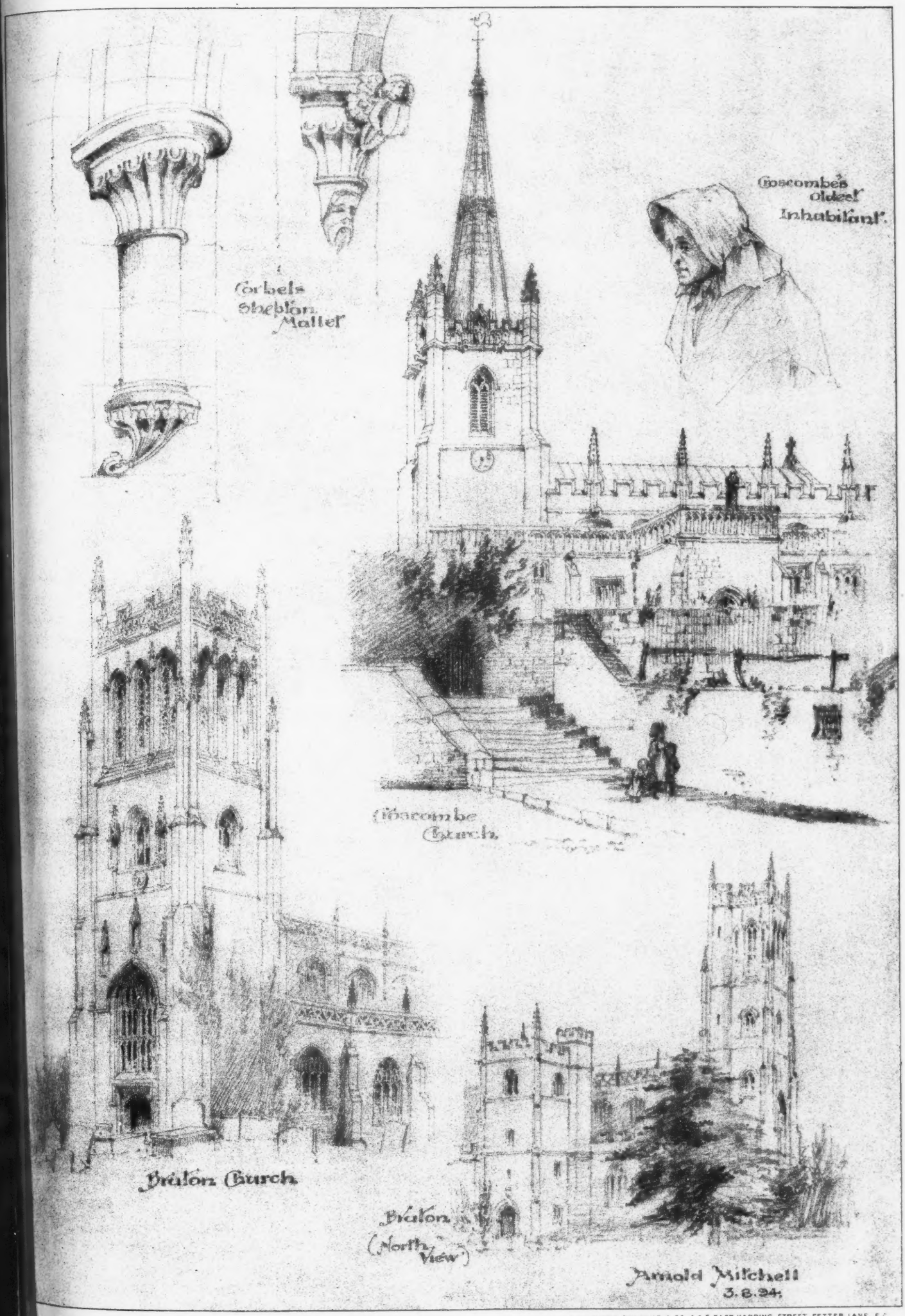

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